



Pima Environmental Services, LLC
 5614 N. Lovington Hwy.
 Hobbs, NM 88240
 575-964-7740

June 8th, 2023

NMOCD District 2
 811 S. First Street
 Artesia, NM 88210

**Re: Site Assessment, Remediation, and Closure Report
 Mustang Sally #1
 API No. 30-041-20943
 GPS: Latitude 33.85189 Longitude -103.41567
 UL "N", Sec. 19, T5S, R34E
 Roosevelt County, NM
 NMOCD Ref. No. NAPP2214759497**

Pima Environmental Services, LLC (Pima) has been contracted by Armstrong Energy Corporation to perform a spill assessment, remediation activities, and submit this closure report for a produced water release that occurred at the Mustang Sally #1 (Mustang Sally). The initial C-141 was submitted on May 27th, 2022 (Appendix C). This incident was assigned Incident ID NAPP2214759497, by the New Mexico Oil Conservation Division (NMOCD).

Site Characterization

The Mustang Sally is located approximately fifteen (15) miles southeast of Elida, NM. This spill site is in Unit N, Section 19, Township 5S, Range 34E, Latitude 33.85189, Longitude -103.41567, Roosevelt County, NM. Figure 1 references a location map.

Per the New Mexico Bureau of Geology and Mineral Resources, the geology is in the Older alluvial deposits of upland plains and piedmont areas, and calcic soils and eolian cover sediments of High Plains region (Middle to lower Pleistocene). The soil in this area is made up of Kimbrough loam, 0 to 3 percent slopes according to the United States Department of Agriculture Natural Resources Conservation Service soil survey (Appendix B). The drainage courses in this area are well-drained. There is a low potential for karst geology to be present around the Mustang Sally (Figure 3).

According to the New Mexico Office of the State Engineer, depth to the nearest groundwater in this area is 115 feet below grade surface (BGS). According to the United States Geological Survey (USGS), the nearest groundwater is 7 feet BGS. The closest waterway is an unnamed Playa located approximately 2.27 miles to the southwest of this location. See Appendix A for referenced water surveys.

Table 1 NMAC and Closure Criteria 19.15.29					
Depth to Groundwater (Appendix A)	Constituent & Limits				
	Chlorides	Total TPH	GRO+DRO	BTEX	Benzene
<50' (No GW Data)	600 mg/kg	100 mg/kg		50 mg/kg	10 mg/kg
51-100'	10,000 mg/kg	2,500 mg/kg	1,000 mg/kg	50 mg/kg	10 mg/kg
>100'	20,000 mg/kg	2,500 mg/kg	1,000 mg/kg	50 mg/kg	10 mg/kg

Reference Figure 2 for a Topographic map.

Release Information

NAPP2214759497: On May 26th, 2022, this well TA'd and this old release was discovered due to cattle licking the soil. While the exact cause of the release is not known it is suspected that it was a stuffing box that leaked and caused the fluid to be distributed near the wellhead.

Site Assessment and Soil Sampling Results

On May 13, 2022, Ensolum conducted site assessment activities at the Mustang Sally. Ensolum personnel advanced two boreholes (BH01 and BH02) via hand-auger within the discolored calched area east of the TA'd wellhead to assess the vertical extent of soil conditions as they relate to potential contaminants and four boreholes (BH03 through BH06) outside of the discolored area for lateral delineation of potential contaminants. Discrete delineation soil samples were collected from the borehole and field screened for volatile aromatic hydrocarbons utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips, respectively. A site map and analytical results can be found in the Ensolum Deferral Request included in Appendix F.

Ensolum Excavation Activities

On June 10, 2022. Excavation activities were directed by previously failed soil sample and field screening results for volatile aromatic hydrocarbons and chloride. Upon identifying field screening results indicating impacted soils were adequately remediated, Ensolum proceeded to collect confirmation soil samples from the floor and sidewalls of the excavation. The total aerial extent of the excavation was approximately 2,509 square feet in size and an average depth of approximately 2.5 feet bgs with the excavation extending to approximately 4.5 feet bgs in the northern portion of the excavation, totaling approximately 2,509 cubic yards of impacted material removed from the site.

Ensolum collected 5-point composite soil samples every 200 square feet from the sidewalls and floor of the excavations. Composite soil samples FS01 through FS13 were collected from the floor of the excavations at depths ranging from 2.5 feet to 4.5 feet bgs. Composite soil samples SW01 through SW05 were collected from the sidewalls at the ground surface to approximately 2.5 feet bgs. The excavation extents, excavation soil sample locations, photographic documentation can be found in the Ensolum Deferral Request included in Appendix F.

Analytical results from confirmation soil samples collected on June 10, 2022, indicated chloride exceeded the Closure Criteria in soil samples FS08 at approximately 2.5 feet bgs, SW02 at approximately the ground surface to 2.5 feet bgs, and SW04 at approximately the ground surface to 2.5 feet bgs. Analytical results for the rest of the confirmation soil samples indicated concentrations of benzene, BTEX, TPH, and chloride were in compliance with the Closure Criteria.

Based on the June 10, 2022, analytical results, additional excavation of residual chloride-impacted soil appeared warranted. As such, Ensolum was onsite June 15, 2022, to complete excavation activities. Following field screening results indicating residual impacts were excavated from the Site, confirmation samples were collected in the comparable manner described above. With the expansion of the excavation, another confirmation floor sample (FS14) was collected at approximately 2.5 feet bgs in order to comply with NMOCDC's confirmation sampling frequency requirement. Confirmation floor soil sample FS08 was resampled at approximately 4.5 feet bgs. Confirmation sidewall soil samples SW06 and SW07 were collected at the ground surface to approximately 2.5 feet bgs in along the western excavation extent.

The total excavation size extended to approximately 2,543 square feet with approximately 280 cubic yards excavated and properly disposed of at a New Mexico-permitted landfarm, specifically to the Gandy Marley, Inc. Commercial Landfill (NM-01-0019) located in Roswell, New Mexico.

Due to the location of the western sidewall in proximity of the wellhead, it was deemed unsafe to excavate closer to the wellhead to remove soil containing 630 mg/kg of chloride at this time. As a result, Ensolum completed follow-up delineation activities to define the area to be deferred for remediation until the well is P&Ad and the pad is reclaimed. Ensolum oversaw delineation activities on July 11, 2022, utilizing mechanical equipment via backhoe to collect delineation soil samples west and north of the wellhead. Two pothole locations, PH01 and PH02, were advanced north and west of the wellhead, respectively, to a total depth of approximately 2.5 feet bgs. In addition, three surficial soil samples, SS01 through SS03, were collected to aid in delineating residual impacted soil.

Analytical results indicated concentrations of benzene, BTEX, TPH, and chloride in soil from pothole PH02 were in compliance with the Closure Criteria. Analytical results for pothole PH01 indicated chloride exceeded the Closure Criteria for chloride; however,

analytical results from surficial soil samples SS01 through SS03, collected at 0.5 feet bgs on the north, west, and south sides of PH02, indicated concentrations of benzene, BTEX, TPH, and chloride were in compliance with the Closure Criteria.

Countermeasures due to Deferral

On May 29th, 2023, Pima mobilized personnel and equipment to conduct remedial activities. We excavated the area overlapping soil samples (SW06 and PH01) previously sampled by Ensolum. The excavated area measured approximately 30 feet by 16 feet by 2.5 feet.

On June 2nd, 2023, after submitting the 48-hour notification (Appendix C), Pima collected confirmation samples. The laboratory results of this sampling event can be found in the following data table. A confirmation site map can be found in Figure 4.

6-2-23 Confirmation Soil Sample Results

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is <50')								
ARMSTRONG ENERGY - MUSTANG SALLY #001								
Sampling Date: 6/2/2023		NM Approved Laboratory Results						
Sample ID	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Cl mg/kg
CS 1	2.5'	ND	ND	ND	ND	ND	0	ND
CS 2	2.5'	ND	ND	ND	ND	ND	0	ND
CS 3	2.5'	ND	ND	ND	ND	ND	0	ND
CS 4	2.5'	ND	ND	ND	ND	ND	0	ND
CSW 1	0-2.5'	ND	ND	ND	ND	ND	0	ND
CSW 2	0-2.5'	ND	ND	ND	ND	ND	0	ND
CSW 3	0-2.5'	ND	ND	ND	ND	ND	0	ND
CSW 4	0-2.5'	ND	ND	ND	ND	ND	0	ND

ND- Analyte Not Detected

Complete laboratory reports can be found in Appendix E.

Closure Request

After careful review, Pima requests that this incident, NAPP2214759497, be closed. Armstrong Energy Corporation has complied with the applicable closure requirements set forth in rule 19.15.19.12 NMAC.

Should you have any questions or need additional information, please feel free to contact Sebastian Orozco at 619-721-4813 or Sebastian@pimaoil.com.

Respectfully,

Sebastian Orozco

Sebastian Orozco
Environmental Project Manager
Pima Environmental Services, LLC

Attachments

Figures:

- 1- Location Map
- 2- Topographic Map
- 3- Karst Map
- 4- Confirmation Site Map

Appendices:

- Appendix A – Referenced Water Surveys
- Appendix B – Soil Survey and Geological Data
- Appendix C – C-141 Form and 48-Hour Notification
- Appendix D – Photographic Documentation
- Appendix E – Laboratory Reports
- Appendix F – Ensolum Deferral Request



Pima Environmental Services

Figures:

1-Location Map

2-Topographic Map



3-Karst Map

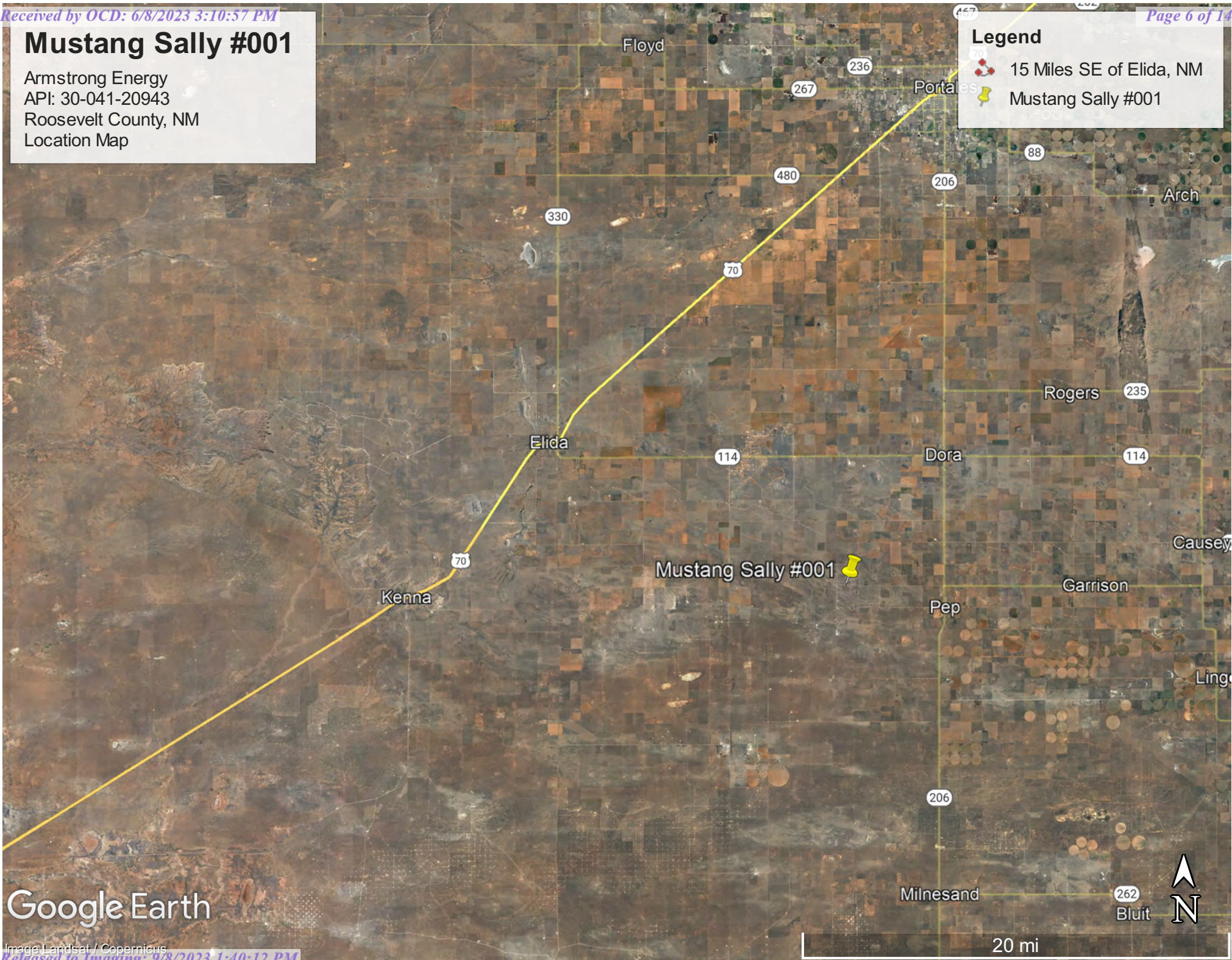
4-Confirmation Site Map

Mustang Sally #001

Armstrong Energy
API: 30-041-20943
Roosevelt County, NM
Location Map

Legend

-  15 Miles SE of Elida, NM
-  Mustang Sally #001




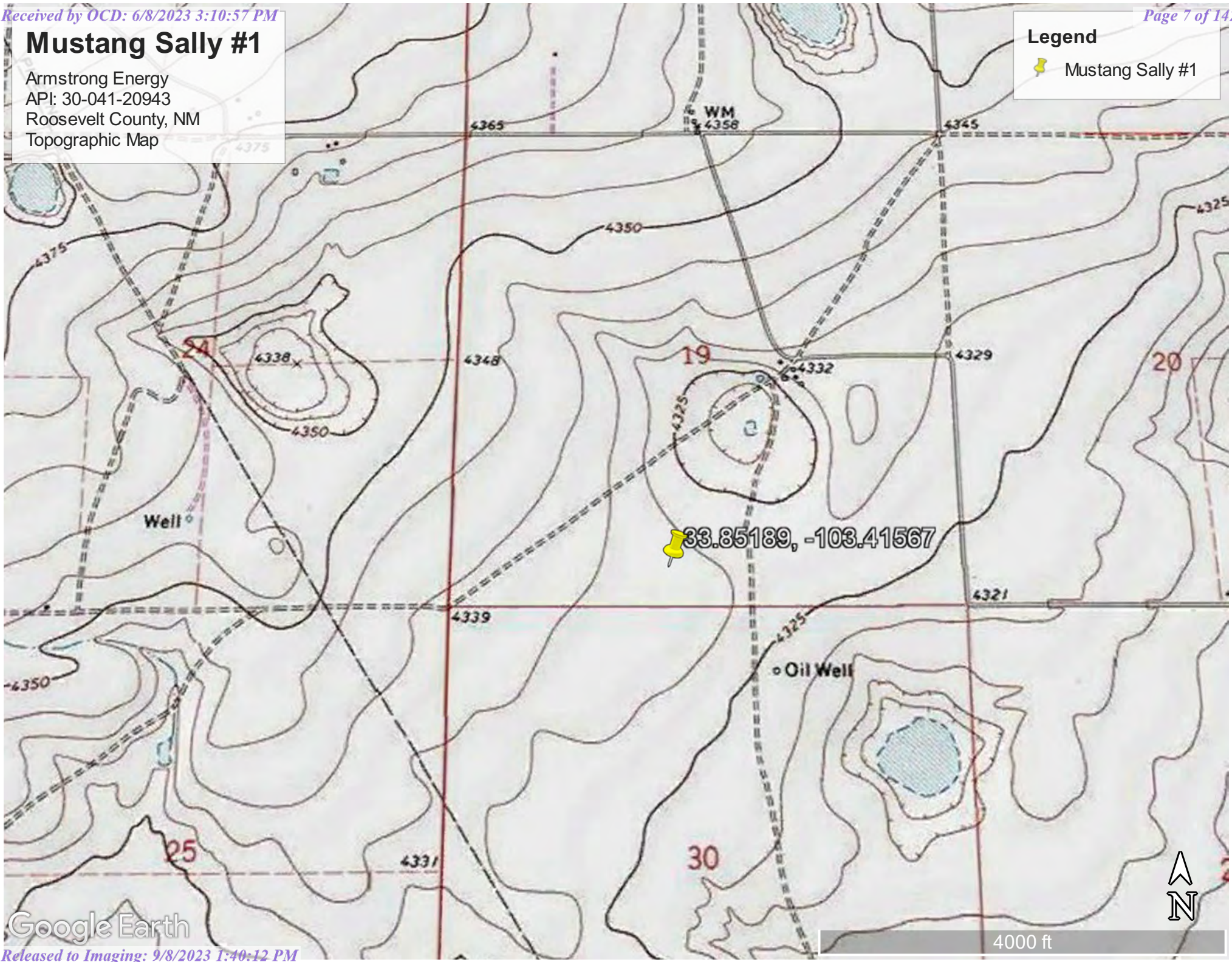
Google Earth

Mustang Sally #1

Armstrong Energy
API: 30-041-20943
Roosevelt County, NM
Topographic Map

Legend





-  Mustang Sally #1



Mustang Sally #1

Armstrong Energy
API:30-041-20943
N-19-05S-34E
Roosevelt County
Karst Map

Legend

-  High Karst
-  Low Karst
-  Medium Karst
-  MUSTANG SALLY #001



MUSTANG SALLY #001 



Mustang Sally #1

Armstrong Energy
API:30-041-20943
N-19-05S-34E
Roosevelt County
Confirmation Map

Legend

- Confirmation Bottom Sample
- Confirmation Side Wall Sample
- Excavated Area





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Appendix A

Water Surveys:

OSE

USGS

Surface Water Map



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
CL00398 POD1		CL	RO	3	1	2	19	05S	34E	646718	3748134	1280	268		
CL00156 POD1		CL	RO	1	1	2	24	05S	33E	645169	3748205*	1941	130		
CL00157 POD1		CL	RO	3	3	4	13	05S	33E	645163	3748407*	2089	130		
CL00158 POD1		CL	RO	2	2	4	13	05S	33E	645760	3749020*	2304	169		
CL00369 POD1		CL	RO	3	2	1	34	05S	34E	651171	3744838	5025	90		
CL00099 POD1		CL	RO		2	2	14	05S	34E	653698	3749861*	7732	165		
CL00100 POD1		CL	RO		2	2	14	05S	34E	653698	3749861*	7732	185	115	70
CL00413 POD1		CL	RO	2	2	1	29	05S	33E	638552	3746524	8026	120		
CL00388 POD1		CL	RO	4	4	2	03	05S	34E	652146	3752647	8034	188	58	130
CL00168 POD2		CL	RO	4	4	4	10	06S	35E	653597	3741597	8780	108	57	51
CL00168 POD1		CL	RO	4	4	4	10	06S	35E	653618	3741566	8815	113	58	55

Average Depth to Water: **72 feet**
 Minimum Depth: **57 feet**
 Maximum Depth: **115 feet**

Record Count: 11

UTMNAD83 Radius Search (in meters):

Easting (X): 646570.89

Northing (Y): 3746862.43

Radius: 9000

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

6/2/23 10:32 AM

WATER COLUMN/ AVERAGE DEPTH TO
WATER



USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

Data Category:


Groundwater

Geographic Area:

United States

GO

Click to hide News Bulletins

- Explore the *NEW* [USGS National Water Dashboard](#) interactive map to access real-time water data from over 13,500 stations nationwide.
- Attention current WaterAlert users: NextGen WaterAlert is replacing Legacy WaterAlert. You must take action before 9/30/2022 to retain your alerts. [Read more.](#)
- [Full News](#) 

Groundwater levels for the Nation

 Important: [Next Generation Monitoring Location Page](#)

Search Results -- 1 sites found

site_no list =

- 373601082140201

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 373601082140201 B073a

Available data for this site

Groundwater: Field measurements

GO

Pike County, Kentucky

Hydrologic Unit Code 05070201

Latitude 37°36'01", Longitude 82°14'02" NAD27

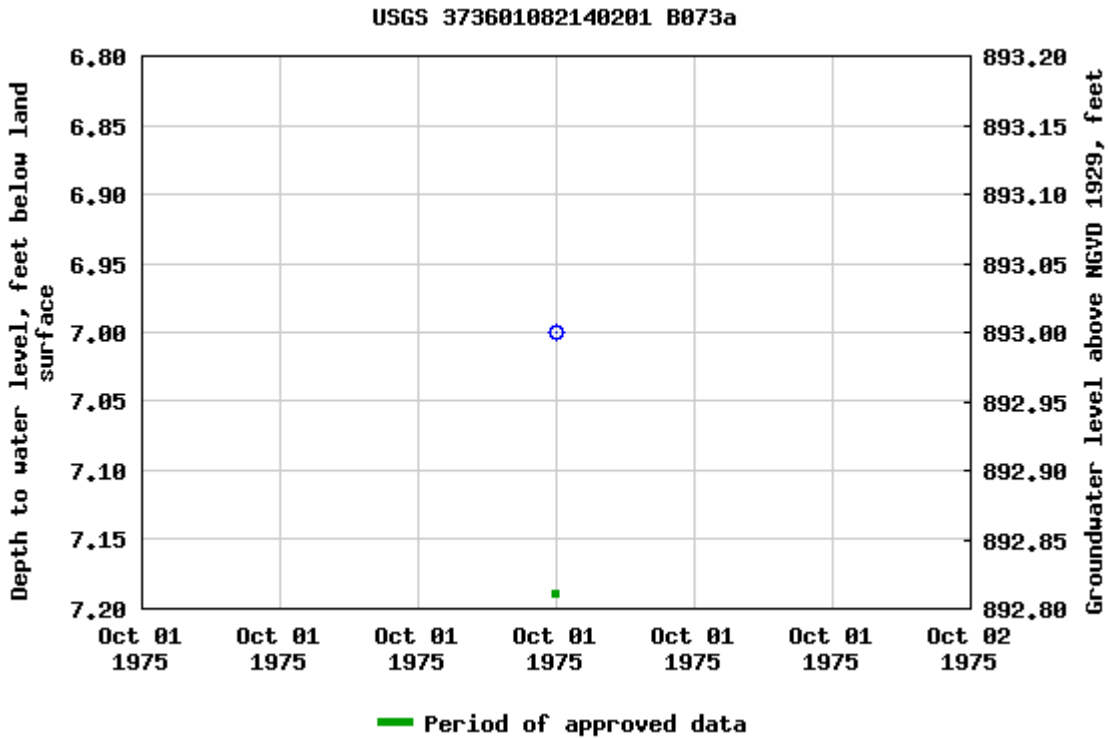
Land-surface elevation 900.00 feet above NGVD29

The depth of the well is 47.0 feet below land surface.

The depth of the hole is 47.0 feet below land surface.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.

[Download a presentation-quality graph](#)

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[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

Title: Groundwater for USA: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>



Page Contact Information: [USGS Water Data Support Team](#)



Page Last Modified: 2022-09-13 22:54:43 EDT

0.6 0.47 nadww01

Mustang Sally #1

Armstrong Energy
API: 30-041-20943
Roosevelt County, NM
Surface Water Map

Legend

-  2.27 Miles
-  Playa

33.85189, -103.41567

Playa


458

206

206

Google Earth

4 mi





Pima Environmental Services

Appendix B

Soil Survey & Geological Data

FEMA Flood Map

Wetlands Map

Map Unit Description: Kimbrough loam, 0 to 3 percent slopes---Roosevelt County, New Mexico

Roosevelt County, New Mexico

KrB—Kimbrough loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2qmyr

Elevation: 2,500 to 4,800 feet

Mean annual precipitation: 14 to 16 inches

Mean annual air temperature: 57 to 63 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Not prime farmland

Map Unit Composition

Kimbrough and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kimbrough

Setting

Landform: Plains

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 3 inches: loam

Bw - 3 to 10 inches: loam

Bkkm1 - 10 to 16 inches: cemented material

Bkkm2 - 16 to 80 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 4 to 18 inches to petrocalcic

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 95 percent

Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)

Sodium adsorption ratio, maximum: 1.0

Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Map Unit Description: Kimbrough loam, 0 to 3 percent slopes---Roosevelt County, New Mexico

Ecological site: R077DY049TX - Very Shallow 12-17" PZ
Hydric soil rating: No

Minor Components

Eunice

Percent of map unit: 6 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R077DY049TX - Very Shallow 12-17" PZ
Hydric soil rating: No

Spraberry

Percent of map unit: 5 percent
Landform: Playa rims, plains
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: R077DY049TX - Very Shallow 12-17" PZ
Hydric soil rating: No

Kenhill

Percent of map unit: 4 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R077DY038TX - Clay Loam 12-17" PZ
Hydric soil rating: No

Data Source Information

Soil Survey Area: Roosevelt County, New Mexico
Survey Area Data: Version 18, Sep 10, 2021

National Flood Hazard Layer FIRMMette



82°16'35"W 37°35'17"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D

OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall

OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance
		17.5 Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature

MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/13/2022 at 10:59 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Wetlands Map



September 14, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



Pima Environmental Services

Appendix C

C-141 Form

48-Hour Notification

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural
Resources Department

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Incident ID	nAPP2214759497
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	Armstrong Energy Corporation	OGRID	1092
Contact Name	Jeffery Tew	Contact Telephone	575-623-2999
Contact email	jtew@aecnm.com	Incident # (assigned by OCD)	nAPP2214759497
Contact mailing address	P.o Box 1973 Roswell, NM 88202-1973		

Location of Release Source

Latitude 33.85189 Longitude 103.41567
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Mustang Sally #1	Site Type	Production Facility
Date Release Discovered	5/26/2022	API# (if applicable)	30-041-20943

Unit Letter	Section	Township	Range	County
N	19	5S	34E	Roosevelt

Surface Owner: State Federal Tribal Private (Name: Roy Lee Criswell)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 77	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

This well is TA'd and this release is an old release that was recently discovered due to cattle licking the soil. While the exact cause of the release is not known it is suspected that it was a stuffing box that leaked and caused the fluid to be distributed on the ground near the wellhead.


State of New Mexico
Oil Conservation Division

Incident ID	nAPP2214759497
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? A release greater than 25 barrels.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, by Jeffery Tew to NMOCD via OCD portal on 5/27/2022.	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.
If all the actions described above have <u>not</u> been undertaken, explain why:
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.
Printed Name: <u>Jeffery Tew</u> Title: <u>Operations Engineer</u> Signature: <u></u> Date: <u>5/27/2022</u> email: <u>jtew@aecnm.com</u> Telephone: <u>575-420-7600</u>
<u>OCD Only</u> Received by: <u>Jocelyn Harimon</u> Date: <u>05/31/2022</u>

Incident ID	nAPP2214759497
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>50</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- Depth to water determination
- Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

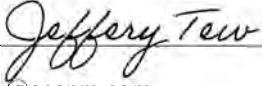
If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Page 4

Incident ID	nAPP2214759497
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Jeffery Tew Title: Operations Engineer
 Signature:  Date: 7/29/2022
 email: jtew@acenm.com Telephone: 575-420-7600

OCD Only

Received by: Jocelyn Harimon Date: 08/08/2022

Incident ID	NAPP2214759497
District RP	
Facility ID	
Application ID	

Remediation Plan

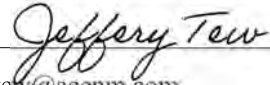
Remediation Plan Checklist: Each of the following items must be included in the plan.

- Detailed description of proposed remediation technique
- Scaled sitemap with GPS coordinates showing delineation points
- Estimated volume of material to be remediated
- Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: Each of the following items must be confirmed as part of any request for deferral of remediation.

- Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- Extents of contamination must be fully delineated.
- Contamination does not cause an imminent risk to human health, the environment, or groundwater.


I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Jeffery Tew Title: Operations Engineer
 Signature:  Date: 7/29/2022
 email: jtew@acenm.com Telephone: 575-420-7600

OCD Only

Received by: Jocelyn Harimon Date: 08/08/2022

- Approved Approved with Attached Conditions of Approval Denied Deferral Approved

Signature:  Date: 08/11/2022

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: Each of the following items must be included in the closure report.

- A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Jeffery Tew Title: Operations Engineer
 Signature: *Jeffery Tew* Date: 6/8/2023
 email: jtew@accnm.com Telephone: 575-240-7600

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: *Nelson Velez* Date: 09/08/2023
 Printed Name: Nelson Velez Title: Environmental Specialist -Adv

From: sebastian@pimaoil.com
To: ocdonline@state.nm.us
Cc: tom@pimaoil.com; Polly@pimaoil.com
Subject: Mustang Sally #001 48-Hour notification
Date: Tuesday, May 30, 2023 11:15:18 AM
Attachments: [image001.png](#)

Good morning,

Pima Environmental would like to notify you that we will be conducting a confirmation sampling event at the Mustang Sally #1 (nAPP2214759497), on Friday June 2nd, 2023. Pima personnel will be on location at 6:30 am. Thank you.

Respectfully,
Sebastian Orozco
Environmental Professional
5614 N Lovington Hwy,
Hobbs, NM 88240
Sebastian@pimaoil.com
619-721-4813 cell





Pima Environmental Services

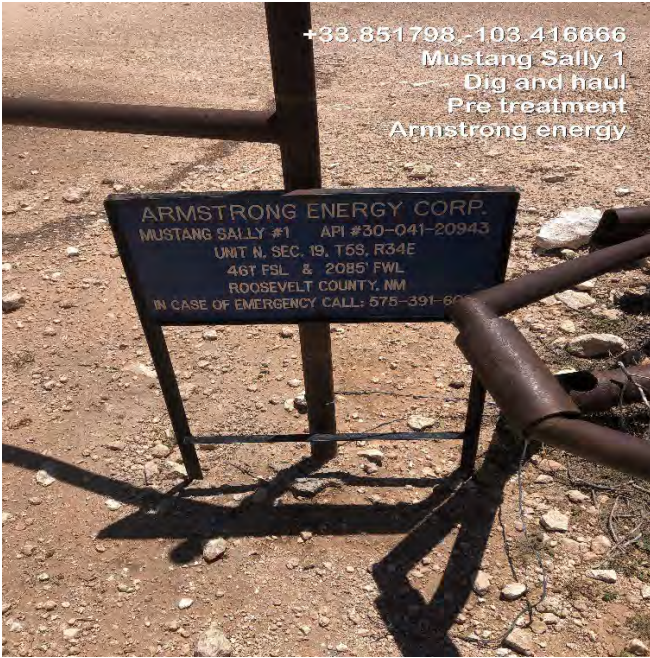
Appendix D

Photographic Documentation



**SITE PHOTOGRAPHS
ARMSTRONG ENERGY
MUSTANG SALLY #001**

Pre-Excavation





Post Excavation





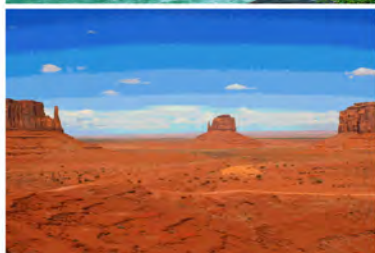


Pima Environmental Services

Appendix E

Laboratory Reports

Report to:
Tom Bynum



envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Pima Environmental Services-Carlsbad

Project Name: Mustang Sally

Work Order: E306014

Job Number: 22093-0001

Received: 6/3/2023

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
6/5/23

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com



Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc, attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc, holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc, holds the Texas TNI certification T104704557 for data reported.

Date Reported: 6/5/23



Tom Bynum
PO Box 247
Plains, TX 79355-0247

Project Name: Mustang Sally
Workorder: E306014
Date Received: 6/3/2023 12:15:00AM

Tom Bynum,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 6/3/2023 12:15:00AM, under the Project Name: Mustang Sally.

The analytical test results summarized in this report with the Project Name: Mustang Sally apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues regarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman
Laboratory Director
Office: 505-632-1881
Cell: 775-287-1762
whinchman@envirotech-inc.com

Raina Schwanz
Laboratory Administrator
Office: 505-632-1881
rainaschwanz@envirotech-inc.com

Alexa Michaels
Sample Custody Officer
Office: 505-632-1881
labadmin@envirotech-inc.com

Field Offices:

Southern New Mexico Area
Lynn Jarboe
Technical Representative/Client Services
Office: 505-421-LABS(5227)
Cell: 505-320-4759
ljjarboe@envirotech-inc.com

West Texas Midland/Odessa Area
Rayny Hagan
Technical Representative
Office: 505-421-LABS(5227)

Envirotech Web Address: www.envirotech-inc.com

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Sample Summary

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 06/05/23 12:11
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Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
CS1	E306014-01A	Soil	06/02/23	06/03/23	Glass Jar, 2 oz.
CS2	E306014-02A	Soil	06/02/23	06/03/23	Glass Jar, 2 oz.
CS3	E306014-03A	Soil	06/02/23	06/03/23	Glass Jar, 2 oz.
CS4	E306014-04A	Soil	06/02/23	06/03/23	Glass Jar, 2 oz.
CSW 1	E306014-05A	Soil	06/02/23	06/03/23	Glass Jar, 2 oz.
CSW 2	E306014-06A	Soil	06/02/23	06/03/23	Glass Jar, 2 oz.
CSW 3	E306014-07A	Soil	06/02/23	06/03/23	Glass Jar, 2 oz.
CSW 4	E306014-08A	Soil	06/02/23	06/03/23	Glass Jar, 2 oz.



Sample Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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**CS1
E306014-01**

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Benzene	ND	0.0250	1	06/03/23	06/03/23	
Ethylbenzene	ND	0.0250	1	06/03/23	06/03/23	
Toluene	ND	0.0250	1	06/03/23	06/03/23	
o-Xylene	ND	0.0250	1	06/03/23	06/03/23	
p,m-Xylene	ND	0.0500	1	06/03/23	06/03/23	
Total Xylenes	ND	0.0250	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		100 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		104 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		93.2 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Gasoline Range Organics (C6-C10)	ND	20.0	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		100 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		104 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		93.2 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg		Analyst: JL		Batch: 2322078
Diesel Range Organics (C10-C28)	ND	25.0	1	06/03/23	06/03/23	
Oil Range Organics (C28-C36)	ND	50.0	1	06/03/23	06/03/23	
<i>Surrogate: n-Nonane</i>		89.6 %	50-200	06/03/23	06/03/23	
Anions by EPA 300.0/9056A	mg/kg	mg/kg		Analyst: RAS		Batch: 2322065
Chloride	ND	20.0	1	06/02/23	06/03/23	



Sample Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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CS2

E306014-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Benzene	ND	0.0250	1	06/03/23	06/03/23	
Ethylbenzene	ND	0.0250	1	06/03/23	06/03/23	
Toluene	ND	0.0250	1	06/03/23	06/03/23	
o-Xylene	ND	0.0250	1	06/03/23	06/03/23	
p,m-Xylene	ND	0.0500	1	06/03/23	06/03/23	
Total Xylenes	ND	0.0250	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		97.8 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		92.7 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Gasoline Range Organics (C6-C10)	ND	20.0	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		97.8 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		92.7 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2322078
Diesel Range Organics (C10-C28)	ND	25.0	1	06/03/23	06/03/23	
Oil Range Organics (C28-C36)	ND	50.0	1	06/03/23	06/03/23	
<i>Surrogate: n-Nonane</i>		86.3 %	50-200	06/03/23	06/03/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2322065
Chloride	ND	20.0	1	06/02/23	06/03/23	



Sample Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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CS3

E306014-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Benzene	ND	0.0250	1	06/03/23	06/03/23	
Ethylbenzene	ND	0.0250	1	06/03/23	06/03/23	
Toluene	ND	0.0250	1	06/03/23	06/03/23	
o-Xylene	ND	0.0250	1	06/03/23	06/03/23	
p,m-Xylene	ND	0.0500	1	06/03/23	06/03/23	
Total Xylenes	ND	0.0250	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		98.3 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		92.9 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Gasoline Range Organics (C6-C10)	ND	20.0	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		98.3 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		92.9 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2322078
Diesel Range Organics (C10-C28)	ND	25.0	1	06/03/23	06/03/23	
Oil Range Organics (C28-C36)	ND	50.0	1	06/03/23	06/03/23	
<i>Surrogate: n-Nonane</i>		91.0 %	50-200	06/03/23	06/03/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2322065
Chloride	ND	20.0	1	06/02/23	06/03/23	



Sample Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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CS4

E306014-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Benzene	ND	0.0250	1	06/03/23	06/03/23	
Ethylbenzene	ND	0.0250	1	06/03/23	06/03/23	
Toluene	ND	0.0250	1	06/03/23	06/03/23	
o-Xylene	ND	0.0250	1	06/03/23	06/03/23	
p,m-Xylene	ND	0.0500	1	06/03/23	06/03/23	
Total Xylenes	ND	0.0250	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		99.2 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		93.0 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Gasoline Range Organics (C6-C10)	ND	20.0	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		99.2 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		93.0 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2322078
Diesel Range Organics (C10-C28)	ND	25.0	1	06/03/23	06/03/23	
Oil Range Organics (C28-C36)	ND	50.0	1	06/03/23	06/03/23	
<i>Surrogate: n-Nonane</i>		85.8 %	50-200	06/03/23	06/03/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2322065
Chloride	ND	20.0	1	06/02/23	06/03/23	



Sample Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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CSW 1

E306014-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Benzene	ND	0.0250	1	06/03/23	06/03/23	
Ethylbenzene	ND	0.0250	1	06/03/23	06/03/23	
Toluene	ND	0.0250	1	06/03/23	06/03/23	
o-Xylene	ND	0.0250	1	06/03/23	06/03/23	
p,m-Xylene	ND	0.0500	1	06/03/23	06/03/23	
Total Xylenes	ND	0.0250	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		98.2 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		92.8 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Gasoline Range Organics (C6-C10)	ND	20.0	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		98.2 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		92.8 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg		Analyst: JL		Batch: 2322078
Diesel Range Organics (C10-C28)	ND	25.0	1	06/03/23	06/03/23	
Oil Range Organics (C28-C36)	ND	50.0	1	06/03/23	06/03/23	
<i>Surrogate: n-Nonane</i>		85.2 %	50-200	06/03/23	06/03/23	
Anions by EPA 300.0/9056A	mg/kg	mg/kg		Analyst: RAS		Batch: 2322065
Chloride	ND	20.0	1	06/02/23	06/03/23	



Sample Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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CSW 2

E306014-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Benzene	ND	0.0250	1	06/03/23	06/03/23	
Ethylbenzene	ND	0.0250	1	06/03/23	06/03/23	
Toluene	ND	0.0250	1	06/03/23	06/03/23	
o-Xylene	ND	0.0250	1	06/03/23	06/03/23	
p,m-Xylene	ND	0.0500	1	06/03/23	06/03/23	
Total Xylenes	ND	0.0250	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		96.9 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		93.4 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Gasoline Range Organics (C6-C10)	ND	20.0	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		96.9 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		93.4 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2322078
Diesel Range Organics (C10-C28)	ND	25.0	1	06/03/23	06/03/23	
Oil Range Organics (C28-C36)	ND	50.0	1	06/03/23	06/03/23	
<i>Surrogate: n-Nonane</i>		89.0 %	50-200	06/03/23	06/03/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2322065
Chloride	ND	20.0	1	06/02/23	06/03/23	



Sample Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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CSW 3

E306014-07

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Benzene	ND	0.0250	1	06/03/23	06/03/23	
Ethylbenzene	ND	0.0250	1	06/03/23	06/03/23	
Toluene	ND	0.0250	1	06/03/23	06/03/23	
o-Xylene	ND	0.0250	1	06/03/23	06/03/23	
p,m-Xylene	ND	0.0500	1	06/03/23	06/03/23	
Total Xylenes	ND	0.0250	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		99.1 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		93.7 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Gasoline Range Organics (C6-C10)	ND	20.0	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		99.1 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		93.7 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2322078
Diesel Range Organics (C10-C28)	ND	25.0	1	06/03/23	06/03/23	
Oil Range Organics (C28-C36)	ND	50.0	1	06/03/23	06/03/23	
<i>Surrogate: n-Nonane</i>		90.0 %	50-200	06/03/23	06/03/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2322065
Chloride	ND	20.0	1	06/02/23	06/03/23	



Sample Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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CSW 4

E306014-08

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Benzene	ND	0.0250	1	06/03/23	06/03/23	
Ethylbenzene	ND	0.0250	1	06/03/23	06/03/23	
Toluene	ND	0.0250	1	06/03/23	06/03/23	
o-Xylene	ND	0.0250	1	06/03/23	06/03/23	
p,m-Xylene	ND	0.0500	1	06/03/23	06/03/23	
Total Xylenes	ND	0.0250	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		99.1 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		93.6 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: SL		Batch: 2322074
Gasoline Range Organics (C6-C10)	ND	20.0	1	06/03/23	06/03/23	
<i>Surrogate: Bromofluorobenzene</i>		99.1 %	70-130	06/03/23	06/03/23	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		107 %	70-130	06/03/23	06/03/23	
<i>Surrogate: Toluene-d8</i>		93.6 %	70-130	06/03/23	06/03/23	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2322078
Diesel Range Organics (C10-C28)	ND	25.0	1	06/03/23	06/03/23	
Oil Range Organics (C28-C36)	ND	50.0	1	06/03/23	06/03/23	
<i>Surrogate: n-Nonane</i>		88.4 %	50-200	06/03/23	06/03/23	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2322065
Chloride	ND	20.0	1	06/02/23	06/03/23	



QC Summary Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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Volatile Organic Compounds by EPA 8260B

Analyst: SL

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec % %	Rec Limits %	RPD % %	RPD Limit %	Notes
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Blank (2322074-BLK1)

Prepared: 06/03/23 Analyzed: 06/03/23

Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: Bromofluorobenzene	0.496		0.500		99.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.521		0.500		104	70-130			
Surrogate: Toluene-d8	0.468		0.500		93.5	70-130			

LCS (2322074-BS1)

Prepared: 06/03/23 Analyzed: 06/03/23

Benzene	2.66	0.0250	2.50		107	70-130			
Ethylbenzene	2.46	0.0250	2.50		98.5	70-130			
Toluene	2.40	0.0250	2.50		96.0	70-130			
o-Xylene	2.41	0.0250	2.50		96.4	70-130			
p,m-Xylene	4.60	0.0500	5.00		91.9	70-130			
Total Xylenes	7.01	0.0250	7.50		93.4	70-130			
Surrogate: Bromofluorobenzene	0.494		0.500		98.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.531		0.500		106	70-130			
Surrogate: Toluene-d8	0.461		0.500		92.2	70-130			

Matrix Spike (2322074-MS1)

Source: E306014-03

Prepared: 06/03/23 Analyzed: 06/03/23

Benzene	2.61	0.0250	2.50	ND	104	48-131			
Ethylbenzene	2.43	0.0250	2.50	ND	97.2	45-135			
Toluene	2.37	0.0250	2.50	ND	94.8	48-130			
o-Xylene	2.38	0.0250	2.50	ND	95.1	43-135			
p,m-Xylene	4.52	0.0500	5.00	ND	90.4	43-135			
Total Xylenes	6.90	0.0250	7.50	ND	92.0	43-135			
Surrogate: Bromofluorobenzene	0.492		0.500		98.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.534		0.500		107	70-130			
Surrogate: Toluene-d8	0.456		0.500		91.1	70-130			

Matrix Spike Dup (2322074-MSD1)

Source: E306014-03

Prepared: 06/03/23 Analyzed: 06/03/23

Benzene	2.91	0.0250	2.50	ND	116	48-131	10.9	23	
Ethylbenzene	2.69	0.0250	2.50	ND	107	45-135	9.95	27	
Toluene	2.64	0.0250	2.50	ND	106	48-130	10.8	24	
o-Xylene	2.67	0.0250	2.50	ND	107	43-135	11.6	27	
p,m-Xylene	5.08	0.0500	5.00	ND	102	43-135	11.6	27	
Total Xylenes	7.75	0.0250	7.50	ND	103	43-135	11.6	27	
Surrogate: Bromofluorobenzene	0.493		0.500		98.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.530		0.500		106	70-130			
Surrogate: Toluene-d8	0.457		0.500		91.3	70-130			



QC Summary Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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Nonhalogenated Organics by EPA 8015D - GRO

Analyst: SL

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec % %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2322074-BLK1)

Prepared: 06/03/23 Analyzed: 06/03/23

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: Bromofluorobenzene	0.496		0.500		99.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.521		0.500		104	70-130			
Surrogate: Toluene-d8	0.468		0.500		93.5	70-130			

LCS (2322074-BS2)

Prepared: 06/03/23 Analyzed: 06/03/23

Gasoline Range Organics (C6-C10)	41.2	20.0	50.0		82.3	70-130			
Surrogate: Bromofluorobenzene	0.494		0.500		98.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.536		0.500		107	70-130			
Surrogate: Toluene-d8	0.466		0.500		93.1	70-130			

Matrix Spike (2322074-MS2)

Source: E306014-03

Prepared: 06/03/23 Analyzed: 06/03/23

Gasoline Range Organics (C6-C10)	42.0	20.0	50.0	ND	84.0	70-130			
Surrogate: Bromofluorobenzene	0.502		0.500		100	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.532		0.500		106	70-130			
Surrogate: Toluene-d8	0.464		0.500		92.8	70-130			

Matrix Spike Dup (2322074-MSD2)

Source: E306014-03

Prepared: 06/03/23 Analyzed: 06/03/23

Gasoline Range Organics (C6-C10)	42.8	20.0	50.0	ND	85.6	70-130	1.80	20	
Surrogate: Bromofluorobenzene	0.494		0.500		98.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.539		0.500		108	70-130			
Surrogate: Toluene-d8	0.471		0.500		94.1	70-130			



QC Summary Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: JL

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2322078-BLK1)

Prepared: 06/03/23 Analyzed: 06/03/23

Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	44.8		50.0		89.5	50-200			

LCS (2322078-BS1)

Prepared: 06/03/23 Analyzed: 06/03/23

Diesel Range Organics (C10-C28)	199	25.0	250		79.6	38-132			
Surrogate: n-Nonane	37.9		50.0		75.9	50-200			

Matrix Spike (2322078-MS1)

Source: E306014-07

Prepared: 06/03/23 Analyzed: 06/05/23

Diesel Range Organics (C10-C28)	243	25.0	250	ND	97.3	38-132			
Surrogate: n-Nonane	44.2		50.0		88.5	50-200			

Matrix Spike Dup (2322078-MSD1)

Source: E306014-07

Prepared: 06/03/23 Analyzed: 06/03/23

Diesel Range Organics (C10-C28)	248	25.0	250	ND	99.3	38-132	2.05	20	
Surrogate: n-Nonane	42.0		50.0		84.1	50-200			



QC Summary Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Mustang Sally Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 6/5/2023 12:11:15PM
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Anions by EPA 300.0/9056A

Analyst: RAS

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2322065-BLK1)

Prepared: 06/02/23 Analyzed: 06/03/23

Chloride	ND	20.0							
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LCS (2322065-BS1)

Prepared: 06/02/23 Analyzed: 06/03/23

Chloride	247	20.0	250		98.8	90-110			
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LCS Dup (2322065-BSD1)

Prepared: 06/02/23 Analyzed: 06/03/23

Chloride	247	20.0	250		98.8	90-110	0.0830	20	
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QC Summary Report Comment:

Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.



Definitions and Notes

Pima Environmental Services-Carlsbad	Project Name:	Mustang Sally	
PO Box 247	Project Number:	22093-0001	Reported:
Plains TX, 79355-0247	Project Manager:	Tom Bynum	06/05/23 12:11

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

DNI Did Not Ignite

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.



Client: Pima Environmental Services Project: Mustang Sally Project Manager: Tom Bynum Address: 5614 N. Lovington Hwy. City, State, Zip: Hobbs, NM, 88240 Phone: 580-748-1613 Email: tom@pimaoil.com		Attention: Bill To Armstrong Energy Address: City, State, Zip: Phone: Email: Pima Project # 19-3		Lab Use Only Lab WO# E300014 Job Number 22093-0001		TAT 1D 2D 3D Standard X		EPA Program CWA SDWA RCRA	
Report due by:		Pima Project # 19-3		Analysis and Method		State		NM CO UT AZ TX X	

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	DRO/DRO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	BGDOC NM	BGDOC TX	Remarks
7:00	6/2/23	S	1	CS1	1							X		
8:05				CS2	2									
8:10				CS3	3									
8:15				CS4	4									
8:20				CSW1	5									
8:25				CSW2	6									
8:30				CSW3	7									
8:35 ^{AM}				CSW4	8									

Additional Instructions: **Bill Pinner**

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabelling the sample location, date or time of collection is considered fraud and may be grounds for legal action. **Sampled by: G.P.**

Relinquished by: (Signature) Vernice Anne	Date 6/1/23	Time 8:2:30	Received by: (Signature) Michelle Cuy	Date 6-2-23	Time 11:30 AM	Lab Use Only Received on ice: <input checked="" type="radio"/> Y <input type="radio"/> N T1 _____ T2 _____ T3 _____ AVG Temp °C 4
Relinquished by: (Signature) Michelle Cuy	Date 6-2-23	Time 1800	Received by: (Signature) Andrew M...	Date 6-2-23	Time 1800	
Relinquished by: (Signature) Andrew M...	Date 6-2-23	Time 2345	Received by: (Signature) Andrew M...	Date 6/3/23	Time 0015	

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other
 Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.



Released to Imaging: 9/8/2023 1:40:12 PM

Received by OCD: 6/8/2023 3:10:57 PM

Page 51 of 142

Envirotech Analytical Laboratory

Printed: 6/5/2023 9:58:18AM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.

If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client: Pima Environmental Services-Carlsbad Date Received: 06/03/23 00:15 Work Order ID: E306014
Phone: (575) 631-6977 Date Logged In: 06/02/23 16:43 Logged In By: Alexa Michaels
Email: tom@pimaoil.com Due Date: 06/05/23 17:00 (0 day TAT)

Chain of Custody (COC)

- 1. Does the sample ID match the COC? Yes
2. Does the number of samples per sampling site location match the COC? Yes
3. Were samples dropped off by client or carrier? Yes
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? Yes
5. Were all samples received within holding time? Yes

Carrier: Courier

Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this discussion.

Comments/Resolution

Sample Turn Around Time (TAT)

- 6. Did the COC indicate standard TAT, or Expedited TAT? Yes

Sample Cooler

- 7. Was a sample cooler received? Yes
8. If yes, was cooler received in good condition? Yes
9. Was the sample(s) received intact, i.e., not broken? Yes
10. Were custody/security seals present? No
11. If yes, were custody/security seals intact? NA
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6±2°C? Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

- 13. If no visible ice, record the temperature. Actual sample temperature: 4°C

Sample Container

- 14. Are aqueous VOC samples present? No
15. Are VOC samples collected in VOA Vials? NA
16. Is the head space less than 6-8 mm (pea sized or less)? NA
17. Was a trip blank (TB) included for VOC analyses? NA
18. Are non-VOC samples collected in the correct containers? Yes
19. Is the appropriate volume/weight or number of sample containers collected? Yes

Field Label

- 20. Were field sample labels filled out with the minimum information:
Sample ID? Yes
Date/Time Collected? Yes
Collectors name? Yes

Sample Preservation

- 21. Does the COC or field labels indicate the samples were preserved? No
22. Are sample(s) correctly preserved? NA
24. Is lab filtration required and/or requested for dissolved metals? No

Multiphase Sample Matrix

- 26. Does the sample have more than one phase, i.e., multiphase? No
27. If yes, does the COC specify which phase(s) is to be analyzed? NA

Subcontract Laboratory

- 28. Are samples required to get sent to a subcontract laboratory? No
29. Was a subcontract laboratory specified by the client and if so who? NA Subcontract Lab: NA

Client Instruction

Empty box for client instruction.

Signature of client authorizing changes to the COC or sample disposition.

Date



envirotech Inc.



Pima Environmental Services

Appendix F

Ensolum Deferral Request



June 29, 2022

District I - Hobbs
New Mexico Oil Conservation Division
1625 North French Drive
Hobbs, New Mexico 88240

**Re: Deferral Request
Mustang Sally #1
Incident Number nAPP2214759497
Roosevelt County, New Mexico**

To Whom It May Concern:

Ensolum, LLC (Ensolum), on behalf of Armstrong Energy Corporation (AEC), has prepared this Deferral Request to document site assessment, excavation, and soil sampling activities performed at the Mustang Sally #1 (Site), located in Unit N, Section 19, Township 5 South, Range 34 East, in Roosevelt County, New Mexico (**Figure 1 in Appendix A**). The purpose of the site assessment and soil sampling activities was to assess for the presence or absence of impacts to soil resulting from observations made by an inspector with the New Mexico Oil Conservation Division (NMOCD). Based on field observations and screening activities, excavation activities to-date, delineation activities, and laboratory analytical results, AEC is submitting this Deferral Request and requesting deferral for Incident Number nAPP2214759497, specifically deferring remediation of residual chloride-impacted soil in the vicinity of the wellhead until the well is plugged and abandoned (P&Ad) and the Site is reclaimed.

SITE DESCRIPTION AND RELEASE SUMMARY

The Site is located in Roosevelt County, New Mexico (33.85189° N, 103.41567° W) and is associated with oil and gas exploration and production operations on private land owned by Mr. Roy Lee Criswell. **Figure 2 in Appendix A** depicts the Site.

AEC contracted with Ensolum to assess discolored soil identified east of the Site's temporarily abandoned (TA'd) wellhead. Based on delineation activities described below, AEC estimated a release of approximately 77 barrels (bbls) of produced water that likely emanated from a leaking stuffing box. The volume of fluids lost was estimated by calculated the volume of potentially contaminated soil and not based on known fluid loss or visual estimated on saturate soils. No fluids were recovered since no standing fluids or saturated soils was present when assessing the potential release. Following receipt of laboratory analytical results from the assessment activities, AEC notified the NMOCD via email and reported the release to the NMOCD on a Release Notification Form C-141 (Form C-141) on May 27, 2022. The release was assigned Incident Number nAPP2214759497.

SITE CHARACTERIZATION AND CLOSURE CRITERIA

The Site was characterized according to Table 1, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC).

Results from the characterization desktop review are presented on page 3 of the Form C-141, Site Assessment/Characterization. Potential site receptors are identified on **Figure 1 in Appendix A**.

Depth to water beneath the the Site is estimated to be greater than 100 feet below ground surface (bgs) based on a data collected from New Mexico Office of the State Engineer (NMOSE) point of diversion (POD) boring POD 1 (C-00398), which was drilled on September 9, 2021. The total depth of the boring was 268 feet bgs and did not encounter a water bearing unit. The borehole is located approximately 4,357 feet north-northwest of the Site and therefore does not meet the NMOD guidance for reasonably estimating the depth to water beneath the Site. The Well Record and Log for POD 1 is included in **Appendix B**.

The closest continuously flowing or significant watercourse to the Site is greater than 300 feet away. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area).

Based on the results of the Site Characterization, the following NMOCD Table 1 Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH) 100 mg/kg
- Chloride: 600 mg/kg

SITE ASSESSMENT ACTIVITIES

On May 13, 2022, site assessment activities were conducted to evaluate the suspected release based on visual observations provided by NMOCD. Ensolum personnel advanced two boreholes (BH01 and BH02) via hand-auger within the discolored caliche area east of the TA'd wellhead to assess the vertical extent of soil conditions as they relate to potential contaminants and four boreholes (BH03 through BH06) outside of the discolored area for lateral delineation of potential contaminants. Discrete delineation soil samples were collected from the borehole and field screened for volatile aromatic hydrocarbons utilizing a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips, respectively. Field screening results and observations from the borehole were documented on lithologic/soil sampling logs, which which are included as **Appendix C**. The boreholes were backfilled with soil removed following sampling activities. The borehole and soil sample locations are depicted on **Figure 3 in Appendix A**. Photographic documentation was conducted during the Site visit. A photographic log is included in **Appendix D**.

The soil samples were collected from the highest field screened depths and the borehole terminuses and placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

Laboratory analytical results for the delineation soil samples from borehole BH01, BH02, and BH06 indicated chloride concentrations exceeded the Site Closure Criteria. Benzene, BTEX, and TPH

concentrations in all soil samples were compliant with the Closure Criteria. Laboratory analytical results depicted on **Figure 3 in Appendix A** and are summarized in **Table 1 in Appendix E**. The complete laboratory analytical report is included as **Appendix F**.

EXCAVATION ACTIVITIES

Based on soil analytical results from delineation activities, remediation of chloride-impacted soil appeared warranted. As such, Ensolum oversaw the excavation and proper disposal of impacted soil on June 10, 2022. Excavation activities were directed by previously failed soil sample and field screening results for volatile aromatic hydrocarbons and chloride. Upon identifying field screening results indicating impacted soils were adequately remediated, Ensolum proceeded to collect confirmation soil samples from the floor and sidewalls of the excavation. The total aerial extent of the excavation was approximately 2,509 square feet in size and an average depth of approximately 2.5 feet bgs with the excavation extending to approximately 4.5 feet bgs in the northern portion of the excavation, totaling approximately 2,509 cubic yards of impacted material removed from the Site.

Ensolum collected 5-point composite soil samples every 200 square feet from the sidewalls and floor of the excavations. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples FS01 through FS13 were collected from the floor of the excavations at depths ranging from 2.5 feet to 4.5 feet bgs. Composite soil samples SW01 through SW05 was collected from the sidewalls at the ground surface to approximately 2.5 feet bgs. The excavation soil samples were collected, handled, and analyzed as described above. The excavation extents and excavation soil sample locations are presented on Figure 4. Photographic documentation of the excavation is presented in **Appendix D**.

Analytical results from confirmation soil samples collected on June 10, 2022 indicated chloride exceeded the Closure Criteria in soil samples FS08 at approximately 2.5 feet bgs, SW02 at approximately the ground surface to 2.5 feet bgs, and SW04 at approximately the ground surface to 2.5 feet bgs. Analytical results for the rest of the confirmation soil samples indicated concentrations of benzene, BTEX, TPH, and chloride were in compliance with the Closure Criteria. **Table 1 in Appendix E** summarizes confirmation soil analytical results.

Based on the June 10, 2022 analytical results, additional excavation of residual chloride-impacted soil appeared warranted. As such, Ensolum was onsite June 15, 2022 to complete excavation activities. Following field screening results indicating residual impacts were excavated from the Site, confirmation samples were collected in the comparable manner described above. With the expansion of the excavation, another confirmation floor sample (FS14) was collected at approximately 2.5 feet bgs in order to comply with NMOCD's confirmation sampling frequency requirement. Confirmation floor soil sample FS08 was resampled at approximately 4.5 feet bgs. Confirmation sidewall soil samples SW06 and SW07 were collected at the ground surface to approximately 2.5 feet bgs in along the western excavation extent.

The total excavation size extended to approximately 2,543 square feet with approximately 280 cubic yards excavated and properly disposed of at a New Mexico-permitted landfarm, specifically to the Gandy Marley, Inc. Commercial Landfill (NM-01-0019) located in Roswell, New Mexico.

Analytical results of all floor and sidewall confirmation soil samples indicated concentrations of benzene, BTEX, TPH, and chloride were in compliance with the Closure Criteria with the exception of sidewall confirmation soil sample SW06. **Table 1 in Appendix E** summarizes confirmation soil analytical results.

DEFERRAL ACTIVITIES

Due to the location of the western sidewall in proximity of the wellhead, it was deemed unsafe to excavate closer to the wellhead to remove soil containing 630 mg/kg of chloride at this time. As a result, Ensolum completed follow-up delineation activities to define the area to be deferred for remediation until the well is P&Ad and the pad is reclaimed. Ensolum oversaw delineation activities on July 11, 2022 utilizing mechanical equipment via backhoe to collect delineation soil samples west and north of the wellhead. Two pothole locations, PH01 and PH02, were advanced north and west of the wellhead, respectively, to a total depth of approximately 2.5 feet bgs. In addition, three surficial soil samples, SS01 through SS03, were collected to aid in delineating residual impacted soil. Field screening and sample handling was completed as described above.

Analytical results indicated concentrations of benzene, BTEX, TPH, and chloride in soil from pothole PH02 were in compliance with the Closure Criteria. Analytical results for pothole PH01 indicated chloride exceeded the Closure Criteria for chloride; however, analytical results from surficial soil samples SS01 through SS03, collected at 0.5 feet bgs on the north, west, and south sides of PH02, indicated concentrations of benzene, BTEX, TPH, and chloride were in compliance with the Closure Criteria. **Table 1 in Appendix E** summarizes confirmation soil analytical results.

Based on field activities, including soil samples that were analyzed, approximately 80 cubic yards of chloride impacted soil have been left in place due to the proximity to the wellhead. Due to the proximity of residual chloride-containing soil to the wellhead, safety concerns prohibit removal of all impacted soil. The area to be deferred will be fenced off to protect from cattle encountering the soil until the well is P&Ad and the pad is reclaimed. AEC is tentatively scheduled to P&A the well by the end of 2022.

DEFERRAL REQUEST

In total, 280 cubic yards of chloride-impacted soil were excavated and properly disposed of at a New Mexico permitted landfill. Approximately 80 cubic yards of soil to a total depth of approximately 3 feet bgs is present at the Site near the wellhead. Remaining impacted soil has been delineated to the strictest Closure Criteria both laterally and vertically. It has been determined that the proximity of residual chloride-impacted soil to the wellhead presents a safety concern and based on AEC's plans to P&A the well by the end of the year, deferring the remaining remediation until that time. The residual impacted area will be fenced off until the well is P&Ad and the soil is remediated to limit potential exposure to nearby grazing cattle. At that time, residual chloride impacted soil will be excavated and disposed of at an approved New Mexico permitted landfill. Non-waste containing caliche has been stockpiled next to the excavation in preparation of backfilling the excavation.

Groundwater beneath the Site is estimated to be greater than 100 feet bgs, but the strictest Closure Criteria are being applied since there is no nearby water well data and reclamation is imminent. Remaining chloride concentrations range from 630 mg/kg to 2,610 mg/kg. The gross impacts have been removed from the Site via excavation and the limited residual impacts are in close proximity to the wellhead, preventing full excavation due to safety concerns. Based on excavation activities and existing delineation data, AEC respectfully requests deferral of final remedial actions for Incident Number nAPP2214759497 until the well is P&Ad and the pad is reclaimed.

Mustang Sally #1
Incident Number nAPP2214759497



If you have any questions or comments, please contact Mr. Daniel Moir at (303) 887-2946 or dmoir@ensolum.com.

Sincerely,
Ensolum, LLC

A handwritten signature in black ink, appearing to read "Daniel R. Moir", enclosed within a faint, light-colored rectangular box.

Daniel R. Moir, P.G.
Senior Managing Geologist

cc: Jeff Tew, Armstrong Energy Corporation
Roy Lee Criswell, private landowner

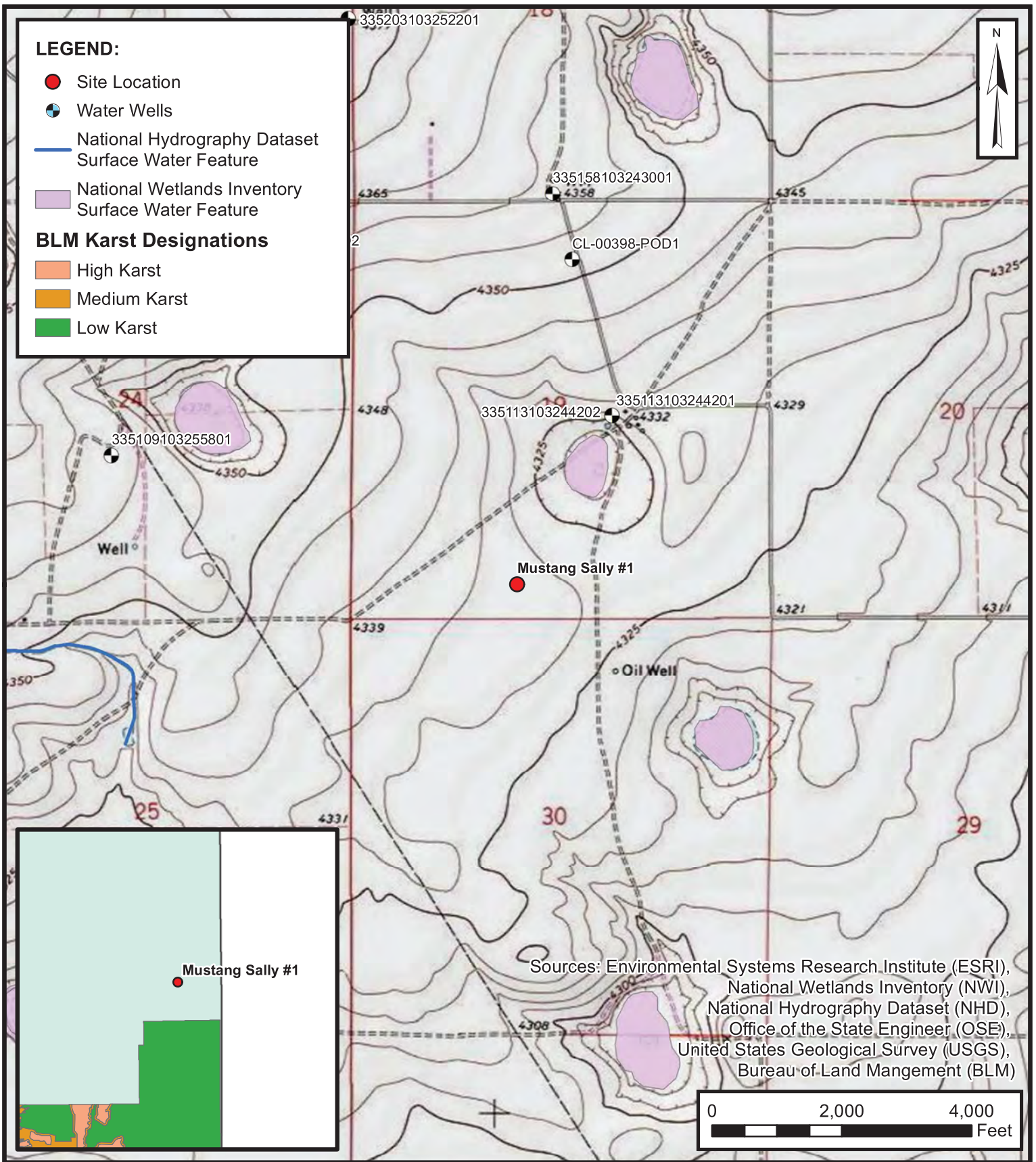
Appendices:

- Appendix A Figures
 - Figure 1 Site Receptor Map
 - Figure 2 Site Map
 - Figure 3 Delineation Soil Sample Locations
 - Figure 4 Excavation Confirmation Soil Sample Locations
- Appendix B Well Record and Log
- Appendix C Lithologic Soil Sampling Logs
- Appendix D Photographic Log
- Appendix E Table
 - Table 1 Soil Sample Analytical Results
- Appendix F Laboratory Analytical Reports & Chain-of-Custody Documentation



APPENDIX A

Figures



Site Receptor Map

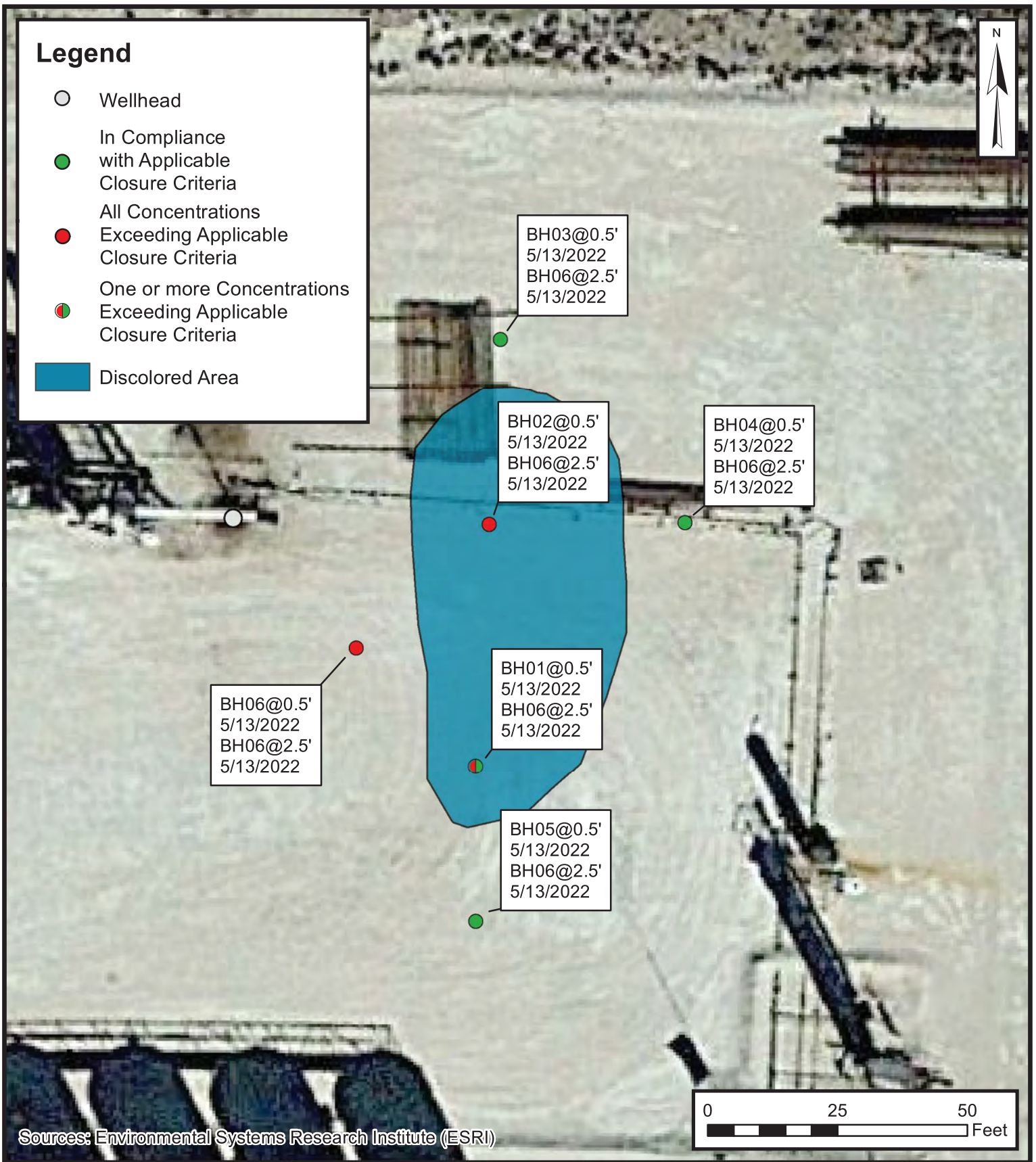
Mustang Sally #1
 Armstrong Energy Corporation
 33.85189, -103.41567
 Roosevelt County, NM

FIGURE
#1



Site Map
Mustang Sally #1
Armstrong Energy Corporation
33.85189, -103.41567
Roosevelt County, NM

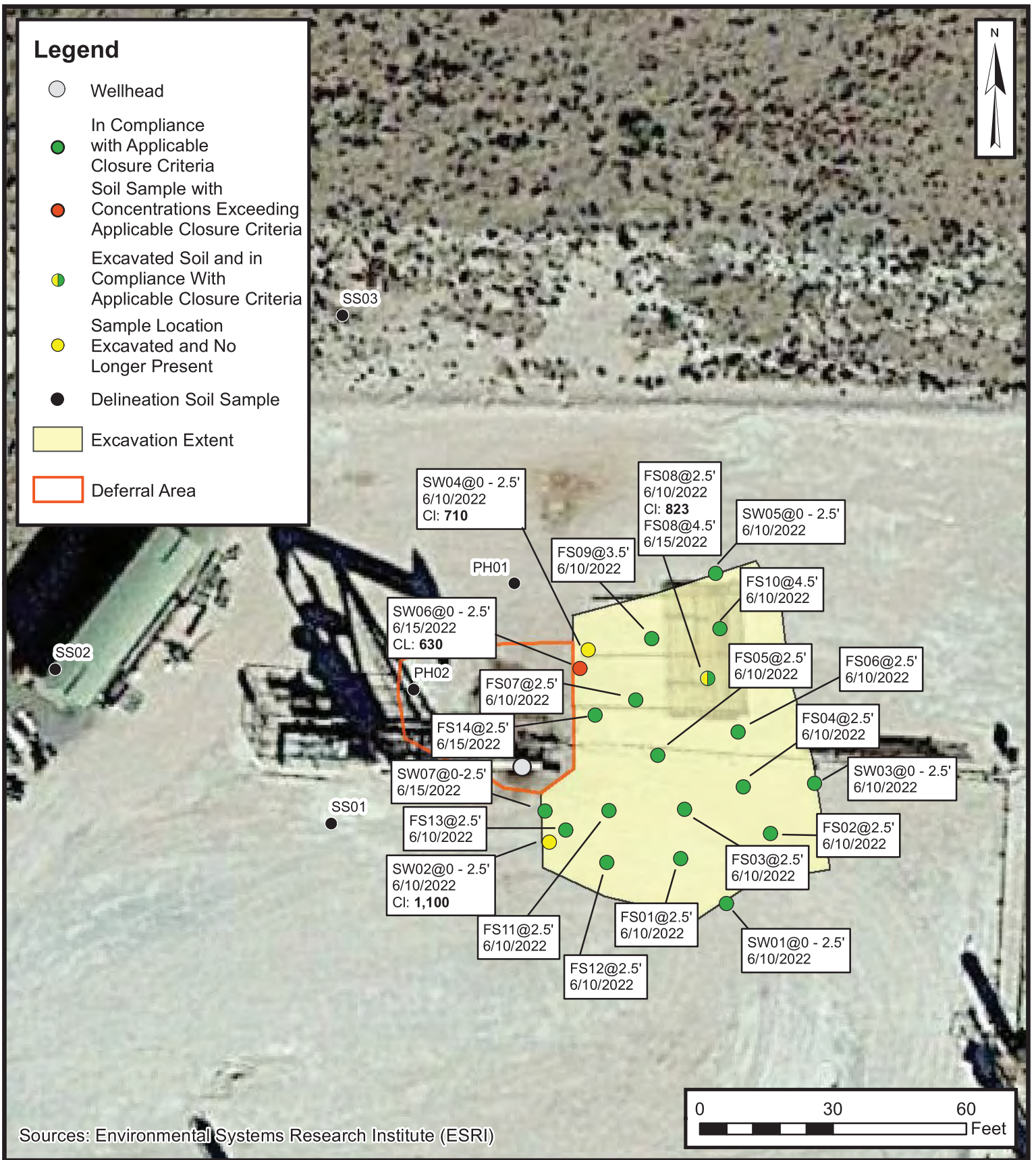
FIGURE
#2



Delineation Soil Sample Location Map

Mustang Sally #1
Armstrong Energy Company
33.85189, -103.41567
Roosevelt County, NM

FIGURE #3



**Excavation Confirmation
Soil Sample Locations**

Mustang Sally #1
Armstrong Energy Company
33.85189, -103.41567
Roosevelt County, NM

FIGURE
#4



APPENDIX B

Well Record and Log



WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION	OSE POD NO. (WELL NO.) POD 1		WELL TAG ID NO. 20F82		OSE FILE NO(S) CL - 00398		
	WELL OWNER NAME(S) ROY LEE CRISWELL				PHONE (OPTIONAL) 575-914-5755		
	WELL OWNER MAILING ADDRESS 2750 S. ROOSEVELT ROAD V				CITY PEP	STATE NM	ZIP 88126
	WELL LOCATION (FROM GPS)	DEGREES 33	MINUTES 51	SECONDS 48.000000	* ACCURACY REQUIRED: ONE TENTH OF A SECOND		
	LATITUDE			N	* DATUM REQUIRED: WGS 84		
	LONGITUDE	-103	24	49.900000	W		
DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS - PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE NW 1/4 of SW 1/4 of NW 1/4 of NE 1/4 of Section 19, Township 05S, Range 34E							

2. DRILLING & CASING INFORMATION	LICENSE NO. WD-1737	NAME OF LICENSED DRILLER JUSTIN MULLINS			NAME OF WELL DRILLING COMPANY SHADE TREE DRILLING			
	DRILLING STARTED 9-19-21	DRILLING ENDED 9-21-21	DEPTH OF COMPLETED WELL (FT) N/A	BORE HOLE DEPTH (FT) 268	DEPTH WATER FIRST ENCOUNTERED (FT) N/A			
	COMPLETED WELL IS: <input type="checkbox"/> ARTESIAN <input checked="" type="checkbox"/> DRY HOLE <input type="checkbox"/> SHALLOW (UNCONFINED)				STATIC WATER LEVEL IN COMPLETED WELL (FT) N/A			
	DRILLING FLUID: <input type="checkbox"/> AIR <input checked="" type="checkbox"/> MUD			ADDITIVES - SPECIFY: DRILLED WITH FRESH WATER ONLY				
	DRILLING METHOD: <input checked="" type="checkbox"/> ROTARY <input type="checkbox"/> HAMMER <input type="checkbox"/> CABLE TOOL <input type="checkbox"/> OTHER - SPECIFY:							
	DEPTH (feet bgl)		BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
	FROM	TO						
	0	268	10.5	NO CASING INSTALLED				

3. ANNULAR MATERIAL	DEPTH (feet bgl)		BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT
	FROM	TO				
	0	20	10.50	BENTONITE HOLE PLUG	13	TOP POUR / HAND
	20	268	10.50	CLEAN CUTTINGS	150	TOP POUR / HAND

FOR OSE INTERNAL USE


WR-20 WELL RECORD & LOG (Version 04/30/19)


FILE NO.	POD NO.	TRN NO.
LOCATION	WELL TAG ID NO.	PAGE 1 OF 2





APPENDIX C


Lithologic Soil Sampling Logs


					Sample Name: BH01		Date: 5/13/2022					
					Site Name: Mustang Sally #1				Incident Number: NAPP2135032531			
					Job Number: 09C2041001				Logged By: DRM		Method: hand auger	
					Coordinates:				Hole Diameter: 2.5"		Total Depth:	
LITHOLOGIC / SOIL SAMPLING LOG					Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 1.4 correction factors included.							
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Time	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions				
M	7,095	0.0	y	BH01@0.25'	0940	0	CCHE	caliche, fine-grained to coarse-grained sand, silt and gravel, grayish-brown, little moist, slight discoloration in top few inches, no odor				
M	3,461	0.0	n			0.25						
						0.5						
M	1,624	0.5	n	BH01@1.5'	0945	0.75	SM	Silty sand, fine-grained to coarse-grained, dark brown, moist, organics present, no staining				
						1						
						1.25						
M	241	0.8	n			1.5						
						1.75						
				2				TD = 1.5 feet bgs				
				2.25								
				2.5								
				2.75								
				3								

		Sample Name: BH02		Date: 5/13/2022				
		Site Name: Mustang Sally #1						
		Incident Number: NAPP2135032531						
		Job Number: 09C2041001						
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: DRM		Method: hand auger		
Coordinates:				Hole Diameter: 2.5"		Total Depth:		
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 1.4 correction factors included.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Time	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	6,076	0.3	y	BH02A @0.5'	0947	0 0.25 0.5 0.75	CCHE SM	caliche, fine-grained to coarse-grained sand, silt and gravel, grayish-brown, little moist, slight discoloration in top few inches. no odor Silty sand, fine-grained to coarse-grained, dark brown, moist, organics present, no staining
M	4,430	0.8	n			1 1.25		
M	4,430	0.7	n			1.5 1.75 2 2.25		
M	572	1.0	n	BH02B @2.5'	0952	2.5 2.75 3		TD = 2.5 feet bgs

		Sample Name: BH03		Date: 5/13/2022				
		Site Name: Mustang Sally #1						
		Incident Number: NAPP2135032531						
		Job Number: 09C2041001						
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: DRM		Method: hand auger		
Coordinates:				Hole Diameter: 2.5"		Total Depth:		
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 1.4 correction factors included.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Time	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
	M	241	1	n	BH03A @0.5'	0 0.25 0.5 0.75	CCHE	caliche, fine-grained to coarse-grained sand, silt and gravel, grayish-brown, little moist, no odor or staining
M	202	1.4	n			1 1.25 1.5 1.75 2 2.25	SM	Silty sand, fine-grained to coarse-grained, dark brown, moist, organics present, no staining
M	<168	0.1	n	BH03B @2.5'	1045	2.5 2.75 3		TD = 2.5 feet bgs

		Sample Name: BH04		Date: 5/13/2022				
		Site Name: Mustang Sally #1						
		Incident Number: NAPP2135032531						
		Job Number: 09C2041001						
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: DRM		Method: hand auger		
Coordinates:				Hole Diameter: 2.5"		Total Depth:		
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 1.4 correction factors included.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Time	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	<168	1.8	n	BH04A @0.5'	1050	0 0.25 0.5 0.75	CCHE	caliche, fine-grained to coarse-grained sand, silt and gravel, grayish-brown, little moist, no odor or staining
M	<168	0.0	n			1 1.25 1.5 1.75 2 2.25	SM	Silty sand, fine-grained to coarse-grained, dark brown, moist, organics present, no staining
M	<168	0.7	n	BH04B @2.5"	1055	2.5 2.75 3		TD = 2.5 feet bgs

		Sample Name: BH05		Date: 5/13/2022				
		Site Name: Mustang Sally #1						
		Incident Number: NAPP2135032531						
		Job Number: 09C2041001						
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: DRM		Method: hand auger		
Coordinates:				Hole Diameter: 2.5"		Total Depth:		
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 1.4 correction factors included.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Time	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	<168	1.0	n	BH05A @0.5'	1115	0 0.25 0.5 0.75	CCHE	caliche, fine-grained to coarse-grained sand, silt and gravel, grayish-brown, little moist, no odor or staining
M	<168	0.5	n			1 1.25 1.5 1.75 2 2.25	SM	Silty sand, fine-grained to coarse-grained, dark brown, moist, organics present, no staining
M	<168	0.6	n	BH05B @2.5'	1120	2.5 2.75 3		TD = 2.5 feet bgs

		Sample Name: BH06		Date: 5/13/2022				
		Site Name: Mustang Sally #1						
		Incident Number: NAPP2135032531						
		Job Number: 09C2041001						
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: DRM		Method: hand auger		
Coordinates:				Hole Diameter: 2.5"		Total Depth:		
Comments: Field screening conducted with HACH Chloride Test Strips and PID for chloride and vapor, respectively. Chloride test performed with 1:4 dilution factor of soil to distilled water. 1.4 correction factors included.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Time	Depth (ft bgs)	USCS/Rock Symbol	Lithologic Descriptions
M	572	0.4	n	BH06A @0.5'	1155	0 0.25 0.5 0.75	CCHE	caliche, fine-grained to coarse-grained sand, silt and gravel, grayish-brown, little moist, no odor or staining
M	476	0.1	n			1 1.25 1.5 1.75 2 2.25	SM	Silty sand, fine-grained to coarse-grained, dark brown, moist, organics present, no staining
M	476	0.8	n	BH06B @2.5'	1200	2.5 2.75 3		TD = 2.5 feet bgs



APPENDIX D

Photographic Log



Photographic Log

Armstrong Energy Corporation
Mustang Sally #1
Incident Number nAPP2214759497
Ensolum Job Number: 09C2041001



Photograph 1
Date: 5/10/2022 - wellhead (left), discolored soil (center), view north)

Photograph 2
Date: 5/10/2022 - wellhead and discolored soil in front, view west



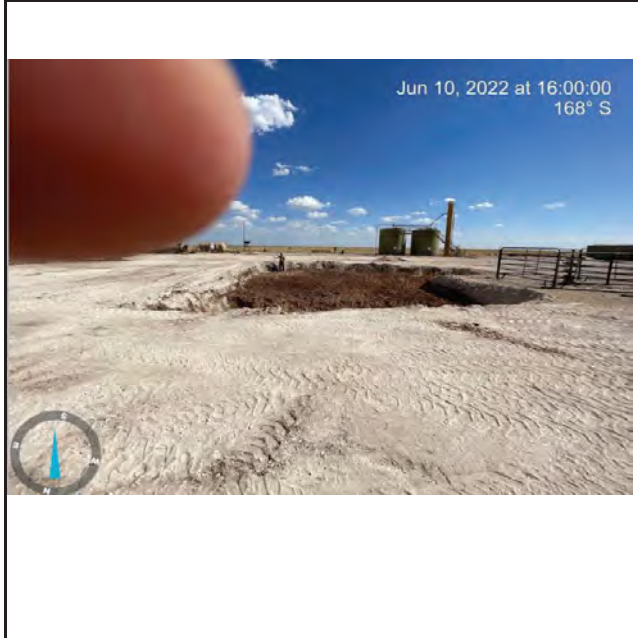
Photograph 3
Date: 6/10/2022 - pre-excitation preparation, view northwest

Photograph 4
Date: 6/10/2022 - excavation progress, view north



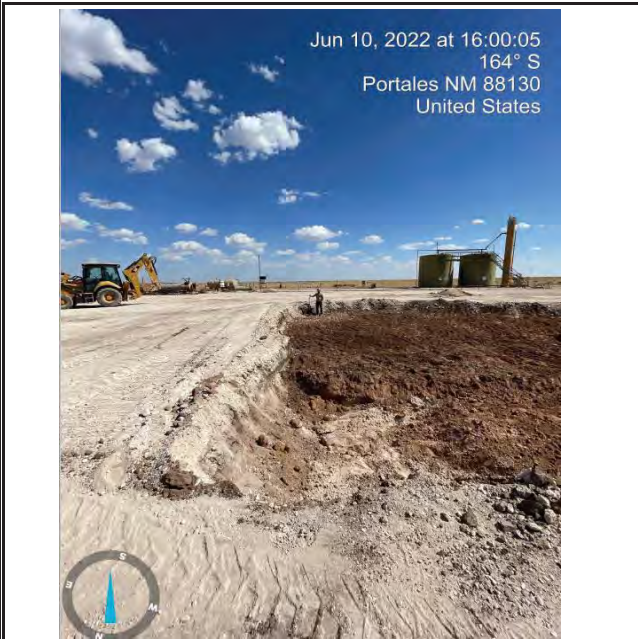
Photographic Log

Armstrong Energy Corporation
Mustang Sally #1
Incident Number nAPP2214759497
Ensolum Job Number: 09C2041001



Photograph 5
Date: 6/10/202 - final excavation, southeastern excavation extent - first view, view south

Photograph 6
Date: 6/10/2022 - final excavation, southeastern excavation extent - second view, view south



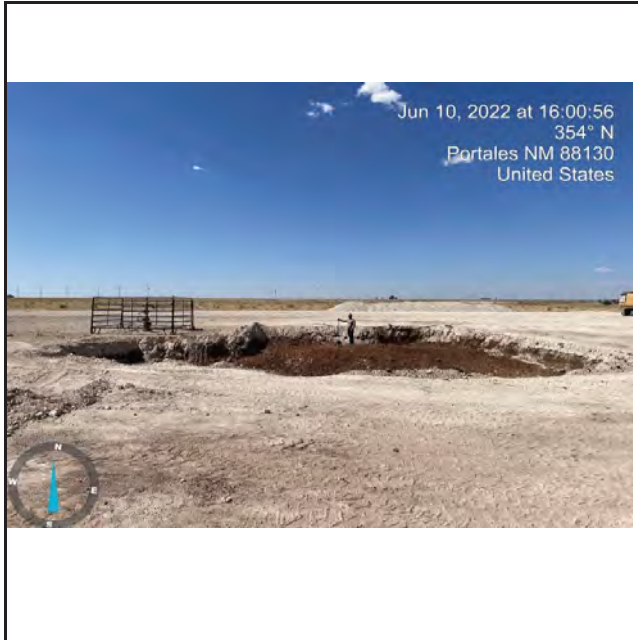
Photograph 7
Date: 6/10/2022 - final excavation, southeastern excavation extent - third view, view south

Photograph 8
Date: 6/10/2022 - final excavation, northeastern excavation extent - first view, view northeast



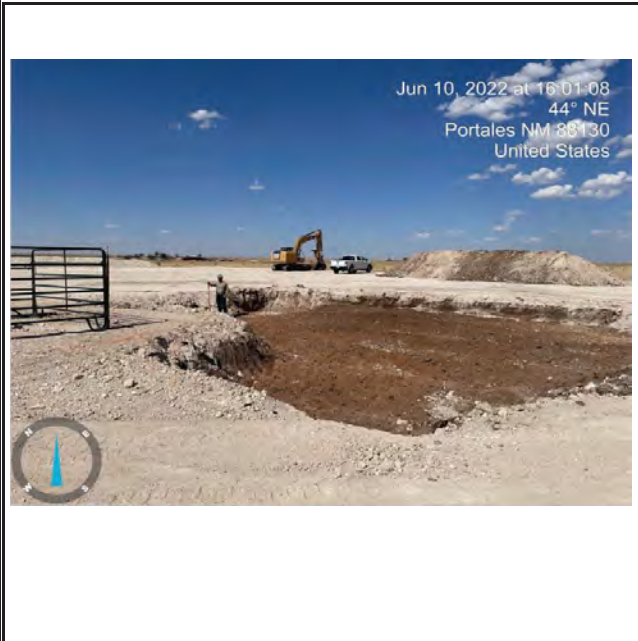
Photographic Log

Armstrong Energy Corporation
Mustang Sally #1
Incident Number nAPP2214759497
Ensolum Job Number: 09C2041001



Photograph 9
Date: 6/10/2022 - final excavation, northeast excavation extent - second view, view northeast

Photograph 10
Date: 6/10/2022 - final excavation, northeastern excavation extent - third view, northwestern excavation extent - first view, view north



Photograph 11
Date: 6/10/2022 - final excavation, northwestern excavation extent - second view, view northeast

Photograph 12
Date: 6/10/2022 - final excavation, northwestern excavation extent - third view, view east



Photographic Log

Armstrong Energy Corporation
Mustang Sally #1
Incident Number nAPP2214759497
Ensolum Job Number: 09C2041001



Photograph 1
Date: 6/10/2022 - final excavation, southwestern excavation extent - first view, view north

Photograph 2
Date: 6/10/2022 - final excavation, southwestern excavation extent, second view, view north



Photograph 3
Date: 6/10/2022 - final excavation, southwestern excavation extent, third view, view west

Photograph 4
Date: 6/10/2022 - final excavation fenced off, view west-northwest



APPENDIX E

Table



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
 Armstrong Energy Corporation - Mustang Sally #001
 Roosevelt County, New Mexico
 Ensolum Project No. 09C2041001

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH MRO (mg/kg)	Total TPH (GRO+DRO+MRO) (mg/kg)	Chloride (mg/kg)
NMOCDC Closure Criteria for Soils Impacted by a Release (Groundwater <50 feet)			10	NE	NE	NE	50	NE	NE	NE	100	600
Delineation Soil Sample Analytical Results												
BH01	5/13/2022	0.25	<0.00200	<0.00200	<0.00200	<0.00400	<0.00400	<49.9	<49.9	<49.9	<49.9	2,910
BH01	5/13/2022	1.5	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<49.8	<49.8	<49.8	<49.8	252
BH02	5/13/2022	0.5	<0.00202	<0.00202	<0.00202	<0.00404	<0.00404	<50.0	<50.0	<50.0	<50.0	7,200
BH02	5/13/2022	2.5	<0.00202	<0.00202	<0.00202	<0.00403	<0.00403	<49.9	<49.9	<49.9	<49.9	960
BH03	5/13/2022	0.5	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<50.0	<50.0	<50.0	<50.0	368
BH03	5/13/2022	2.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<49.9	<49.9	<49.9	<49.9	265
BH04	5/13/2022	0.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<49.9	<49.9	<49.9	<49.9	71.1
BH04	5/13/2022	2.5	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.9	<49.9	<49.9	<49.9	72.4
BH05	5/13/2022	0.5	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	108
BH05	5/13/2022	2.5	<0.00198	<0.00198	<0.00198	<0.00396	<0.00396	<50.0	<50.0	<50.0	<50.0	26.5
BH06	5/13/2022	0.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<49.9	<49.9	<49.9	<49.9	1,310
BH06	5/13/2022	2.5	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<50.0	<50.0	<50.0	<50.0	740
PH01	7/11/2022	0.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.1	<50.2	<50.3	427
PH01A	7/11/2022	3	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<49.9	<49.9	<49.9	<49.9	216
PH02	7/11/2022	0.5	<0.00201	<0.00201	<0.00201	<0.00402	<0.00402	<49.8	<49.8	<49.8	<49.8	2,610
PH02A	7/11/2022	3	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	867
SS01	7/11/2022	0.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	395
SS02	7/11/2022	0.5	<0.00200	<0.00200	<0.00200	<0.00400	<0.00400	<50.0	<50.0	<50.0	<50.0	268
SS03	7/11/2022	0.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	407
Excavation Confirmation Soil Sample Analytical Results												
FS01	6/10/2022	2.5	<0.00200	<0.00200	<0.00200	0.0102	0.0102	<49.9	<49.9	<49.9	<49.9	93.4
FS02	6/10/2022	2.5	<0.00199	<0.00199	<0.00199	0.0172	0.0172	<49.9	<49.9	<49.9	<49.9	49.2
FS03	6/10/2022	2.5	<0.00200	<0.00200	<0.00200	0.0121	0.0121	<50.0	<50.0	<50.0	<50.0	126
FS04	6/10/2022	2.5	<0.00201	<0.00201	<0.00201	0.0111	0.0111	<49.9	<49.9	<49.9	<49.9	88.7
FS05	6/10/2022	2.5	<0.00202	<0.00202	<0.00202	0.0152	0.0152	<50.0	<50.0	<50.0	<50.0	248
FS06	6/10/2022	2.5	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	169
FS07	6/10/2022	2.5	<0.00199	<0.00199	<0.00199	0.0041	0.0041	<50.0	<50.0	<50.0	<50.0	217
FS08	6/10/2022	2.5	<0.00200	<0.00200	<0.00200	0.00506	0.00506	<50.0	<50.0	<50.0	<50.0	823
FS08	6/15/2022	4	<0.00200	<0.00200	<0.00200	<0.00400	<0.00400	<49.8	<49.8	<49.8	<49.8	275
FS09	6/10/2022	3.5	<0.00199	<0.00199	<0.00199	0.00532	0.00532	<50.0	<50.0	<50.0	<50.0	250
FS10	6/10/2022	4.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<49.9	<49.9	<49.9	<49.9	121
FS11	6/10/2022	2.5	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<49.9	<49.9	<49.9	<49.9	208
FS12	6/10/2022	2.5	<0.00201	<0.00201	<0.00201	0.00449	0.00449	<49.9	<49.9	<49.9	<49.9	158
FS13	6/10/2022	2.5	<0.00202	<0.00202	<0.00202	0.0124	0.0124	<50.0	<50.0	<50.0	<50.0	92.6
FS14	6/15/2022	2.5	<0.00200	<0.00200	<0.00200	<0.00401	<0.00401	<50.0	<50.0	<50.0	<50.0	128
SW01	6/10/2022	0 - 2.5	<0.00200	<0.00200	<0.00200	0.0106	0.0106	<50.0	<50.0	<50.0	<50.0	127
SW02	6/10/2022	0 - 2.5	<0.00199	<0.00199	<0.00199	0.00708	0.00708	<50.0	53.4	<50.0	53.4	1,100
SW03	6/10/2022	0 - 2.5	<0.00199	<0.00199	<0.00199	0.0135	0.0135	<50.0	<50.0	<50.0	<50.0	199
SW04	6/10/2022	0 - 2.5	<0.00199	<0.00199	<0.00199	0.0147	0.0147	<50.0	<50.0	<50.0	<50.0	710
SW05	6/10/2022	0 - 2.5	<0.00202	<0.00202	<0.00202	0.0116	0.0116	<50.0	<50.0	<50.0	<50.0	384
SW06	6/15/2022	0 - 2.5	<0.00200	<0.00200	<0.00200	<0.00399	<0.00399	<49.9	<49.9	<49.9	<49.9	630
SW07	06/15/2022	0 - 2.5	<0.00199	<0.00199	<0.00199	<0.00398	<0.00398	<50.0	<50.0	<50.0	<50.0	453

Notes:

- bgs: below ground surface
- J: The target analyte was positively identified below the quantitation limit and above the detection limit.
- mg/kg: milligrams per kilogram
- NA: Not Applicable
- NE: Not Established
- NS: Not Sampled
- NMOCDC: New Mexico Oil Conservation Division
- PID: Photoionization Detector
- ppm: parts per million
- BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes
- GRO: Gasoline Range Organics
- DRO: Diesel Range Organics
- MRO: Motor Oil/Lube Oil Range Organics
- TPH: Total Petroleum Hydrocarbon
- <49.9: indicates result less than the stated laboratory reporting limit (RL)
- Concentrations in bold and shaded exceed the New Mexico Oil Conservation Division Table 1 Closure Criteria for Soils Impacted by a Release
- gray text indicates soil has been excavated and is not present in the location



APPENDIX F

Laboratory Analytical Reports & Chain-of-Custody Documentation



Environment Testing
America

ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-2311-1
Laboratory Sample Delivery Group: Roosevelt County NM
Client Project/Site: Mustang Sally #1

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Daniel Moir

Authorized for release by:
5/19/2022 11:18:35 AM

Jessica Kramer, Project Manager
(432)704-5440
Jessica.Kramer@et.eurofinsus.com

LINKS

Review your project
results through



Have a Question?



Visit us at:

www.eurofinsus.com/Env

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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- 10
- 11
- 12
- 13
- 14

Client: Ensolum
Project/Site: Mustang Sally #1

Laboratory Job ID: 890-2311-1
SDG: Roosevelt County NM

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Definitions/Glossary

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Qualifiers

GC VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Job ID: 890-2311-1

Laboratory: Eurofins Carlsbad**Narrative**

**Job Narrative
890-2311-1**

Receipt

The samples were received on 5/13/2022 2:50 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.6°C

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-25650 and analytical batch 880-25671 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: The laboratory control sample (LCS) associated with preparation batch 880-25651 and analytical batch 880-25672 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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Client Sample Results

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Client Sample ID: BH01A

Lab Sample ID: 890-2311-1

Date Collected: 05/13/22 09:40

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 0.25

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/18/22 05:15	1
Toluene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/18/22 05:15	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/18/22 05:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		05/16/22 15:49	05/18/22 05:15	1
o-Xylene	<0.00200	U *	0.00200	mg/Kg		05/16/22 15:49	05/18/22 05:15	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		05/16/22 15:49	05/18/22 05:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130	05/16/22 15:49	05/18/22 05:15	1
1,4-Difluorobenzene (Surr)	91		70 - 130	05/16/22 15:49	05/18/22 05:15	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			05/18/22 08:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 18:16	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 18:16	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 18:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	117		70 - 130	05/17/22 09:20	05/17/22 18:16	1
o-Terphenyl	120		70 - 130	05/17/22 09:20	05/17/22 18:16	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2910		25.1	mg/Kg			05/18/22 14:52	5

Client Sample ID: BH01B

Lab Sample ID: 890-2311-2

Date Collected: 05/13/22 09:45

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 1.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/18/22 05:35	1
Toluene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/18/22 05:35	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/18/22 05:35	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		05/16/22 15:49	05/18/22 05:35	1
o-Xylene	<0.00200	U *	0.00200	mg/Kg		05/16/22 15:49	05/18/22 05:35	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		05/16/22 15:49	05/18/22 05:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	05/16/22 15:49	05/18/22 05:35	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Client Sample ID: BH01B

Lab Sample ID: 890-2311-2

Date Collected: 05/13/22 09:45

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 1.5

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	98		70 - 130	05/16/22 15:49	05/18/22 05:35	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8	mg/Kg			05/18/22 08:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		05/17/22 09:20	05/17/22 18:39	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		05/17/22 09:20	05/17/22 18:39	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		05/17/22 09:20	05/17/22 18:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	105		70 - 130	05/17/22 09:20	05/17/22 18:39	1
o-Terphenyl	109		70 - 130	05/17/22 09:20	05/17/22 18:39	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	252		4.98	mg/Kg			05/18/22 15:20	1

Client Sample ID: BH02A

Lab Sample ID: 890-2311-3

Date Collected: 05/13/22 09:47

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		05/16/22 15:49	05/18/22 05:56	1
Toluene	<0.00202	U	0.00202	mg/Kg		05/16/22 15:49	05/18/22 05:56	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		05/16/22 15:49	05/18/22 05:56	1
m-Xylene & p-Xylene	<0.00404	U	0.00404	mg/Kg		05/16/22 15:49	05/18/22 05:56	1
o-Xylene	<0.00202	U *	0.00202	mg/Kg		05/16/22 15:49	05/18/22 05:56	1
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		05/16/22 15:49	05/18/22 05:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	05/16/22 15:49	05/18/22 05:56	1
1,4-Difluorobenzene (Surr)	92		70 - 130	05/16/22 15:49	05/18/22 05:56	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			05/18/22 08:44	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Client Sample ID: BH02A

Lab Sample ID: 890-2311-3

Date Collected: 05/13/22 09:47

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 0.5

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 19:01	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 19:01	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 19:01	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130			05/17/22 09:20	05/17/22 19:01	1
o-Terphenyl	111		70 - 130			05/17/22 09:20	05/17/22 19:01	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7200		50.5	mg/Kg			05/18/22 15:29	10

Client Sample ID: BH02B

Lab Sample ID: 890-2311-4

Date Collected: 05/13/22 09:52

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 2.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		05/16/22 15:49	05/18/22 06:16	1
Toluene	<0.00202	U	0.00202	mg/Kg		05/16/22 15:49	05/18/22 06:16	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		05/16/22 15:49	05/18/22 06:16	1
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		05/16/22 15:49	05/18/22 06:16	1
o-Xylene	<0.00202	U *	0.00202	mg/Kg		05/16/22 15:49	05/18/22 06:16	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		05/16/22 15:49	05/18/22 06:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130			05/16/22 15:49	05/18/22 06:16	1
1,4-Difluorobenzene (Surr)	96		70 - 130			05/16/22 15:49	05/18/22 06:16	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			05/18/22 08:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 19:26	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 19:26	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 19:26	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	95		70 - 130			05/17/22 09:20	05/17/22 19:26	1
o-Terphenyl	100		70 - 130			05/17/22 09:20	05/17/22 19:26	1

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Client Sample Results

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

Client Sample ID: BH02B

Lab Sample ID: 890-2311-4

Date Collected: 05/13/22 09:52

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 2.5

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	960		25.0	mg/Kg			05/18/22 15:38	5

Client Sample ID: BH03A

Lab Sample ID: 890-2311-5

Date Collected: 05/13/22 10:40

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		05/16/22 15:49	05/18/22 06:37	1
Toluene	<0.00201	U	0.00201	mg/Kg		05/16/22 15:49	05/18/22 06:37	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		05/16/22 15:49	05/18/22 06:37	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		05/16/22 15:49	05/18/22 06:37	1
o-Xylene	<0.00201	U *	0.00201	mg/Kg		05/16/22 15:49	05/18/22 06:37	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		05/16/22 15:49	05/18/22 06:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	05/16/22 15:49	05/18/22 06:37	1
1,4-Difluorobenzene (Surr)	97		70 - 130	05/16/22 15:49	05/18/22 06:37	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			05/18/22 08:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 19:51	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 19:51	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 19:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130	05/17/22 09:20	05/17/22 19:51	1
o-Terphenyl	113		70 - 130	05/17/22 09:20	05/17/22 19:51	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	368		4.95	mg/Kg			05/18/22 15:47	1

Client Sample Results

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Client Sample ID: BH03B

Lab Sample ID: 890-2311-6

Date Collected: 05/13/22 10:45

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 2.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		05/16/22 15:49	05/18/22 06:57	1
Toluene	<0.00199	U	0.00199	mg/Kg		05/16/22 15:49	05/18/22 06:57	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		05/16/22 15:49	05/18/22 06:57	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		05/16/22 15:49	05/18/22 06:57	1
o-Xylene	<0.00199	U *	0.00199	mg/Kg		05/16/22 15:49	05/18/22 06:57	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		05/16/22 15:49	05/18/22 06:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130	05/16/22 15:49	05/18/22 06:57	1
1,4-Difluorobenzene (Surr)	97		70 - 130	05/16/22 15:49	05/18/22 06:57	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			05/18/22 08:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 20:17	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 20:17	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 20:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	110		70 - 130	05/17/22 09:20	05/17/22 20:17	1
o-Terphenyl	117		70 - 130	05/17/22 09:20	05/17/22 20:17	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	265		4.97	mg/Kg			05/18/22 16:15	1

Client Sample ID: BH04A

Lab Sample ID: 890-2311-7

Date Collected: 05/13/22 10:50

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 1.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		05/16/22 15:49	05/18/22 07:18	1
Toluene	<0.00199	U	0.00199	mg/Kg		05/16/22 15:49	05/18/22 07:18	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		05/16/22 15:49	05/18/22 07:18	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		05/16/22 15:49	05/18/22 07:18	1
o-Xylene	<0.00199	U *	0.00199	mg/Kg		05/16/22 15:49	05/18/22 07:18	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		05/16/22 15:49	05/18/22 07:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		70 - 130	05/16/22 15:49	05/18/22 07:18	1

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Client Sample Results

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Client Sample ID: BH04A

Lab Sample ID: 890-2311-7

Date Collected: 05/13/22 10:50

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 1.5

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	95		70 - 130	05/16/22 15:49	05/18/22 07:18	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			05/18/22 08:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 20:43	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 20:43	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 20:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	99		70 - 130	05/17/22 09:20	05/17/22 20:43	1
o-Terphenyl	105		70 - 130	05/17/22 09:20	05/17/22 20:43	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	71.1		5.00	mg/Kg			05/18/22 16:24	1

Client Sample ID: BH05A

Lab Sample ID: 890-2311-8

Date Collected: 05/13/22 11:20

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/18/22 07:38	1
Toluene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/18/22 07:38	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/18/22 07:38	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		05/16/22 15:49	05/18/22 07:38	1
o-Xylene	<0.00200	U *	0.00200	mg/Kg		05/16/22 15:49	05/18/22 07:38	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		05/16/22 15:49	05/18/22 07:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130	05/16/22 15:49	05/18/22 07:38	1
1,4-Difluorobenzene (Surr)	95		70 - 130	05/16/22 15:49	05/18/22 07:38	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			05/18/22 08:44	1

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Client Sample Results

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Client Sample ID: BH05A

Lab Sample ID: 890-2311-8

Date Collected: 05/13/22 11:20

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 0.5

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 21:08	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 21:08	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 21:08	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	112		70 - 130			05/17/22 09:20	05/17/22 21:08	1
o-Terphenyl	118		70 - 130			05/17/22 09:20	05/17/22 21:08	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	108		4.95	mg/Kg			05/18/22 16:33	1

Client Sample ID: BH05B

Lab Sample ID: 890-2311-9

Date Collected: 05/13/22 12:00

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 2.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		05/16/22 15:49	05/18/22 07:58	1
Toluene	<0.00198	U	0.00198	mg/Kg		05/16/22 15:49	05/18/22 07:58	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		05/16/22 15:49	05/18/22 07:58	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		05/16/22 15:49	05/18/22 07:58	1
o-Xylene	<0.00198	U *	0.00198	mg/Kg		05/16/22 15:49	05/18/22 07:58	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		05/16/22 15:49	05/18/22 07:58	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130			05/16/22 15:49	05/18/22 07:58	1
1,4-Difluorobenzene (Surr)	97		70 - 130			05/16/22 15:49	05/18/22 07:58	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00396	U	0.00396	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			05/18/22 08:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 21:56	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 21:56	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 21:56	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	109		70 - 130			05/17/22 09:20	05/17/22 21:56	1
o-Terphenyl	118		70 - 130			05/17/22 09:20	05/17/22 21:56	1

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Client Sample Results

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

Client Sample ID: BH05B

Lab Sample ID: 890-2311-9

Date Collected: 05/13/22 12:00

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 2.5

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.5		5.04	mg/Kg			05/18/22 16:43	1

Client Sample ID: BH04B

Lab Sample ID: 890-2311-10

Date Collected: 05/13/22 10:55

Matrix: Solid

Date Received: 05/13/22 14:50

Sample Depth: 2.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U F1 F2	0.00201	mg/Kg		05/16/22 15:47	05/17/22 23:35	1
Toluene	<0.00201	U F1 F2	0.00201	mg/Kg		05/16/22 15:47	05/17/22 23:35	1
Ethylbenzene	<0.00201	U F1 F2	0.00201	mg/Kg		05/16/22 15:47	05/17/22 23:35	1
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.00402	mg/Kg		05/16/22 15:47	05/17/22 23:35	1
o-Xylene	<0.00201	U F1 F2	0.00201	mg/Kg		05/16/22 15:47	05/17/22 23:35	1
Xylenes, Total	<0.00402	U F1 F2	0.00402	mg/Kg		05/16/22 15:47	05/17/22 23:35	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130			05/16/22 15:47	05/17/22 23:35	1
1,4-Difluorobenzene (Surr)	95		70 - 130			05/16/22 15:47	05/17/22 23:35	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00402	U	0.00402	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			05/18/22 08:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 22:21	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 22:21	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 22:21	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130			05/17/22 09:20	05/17/22 22:21	1
o-Terphenyl	93		70 - 130			05/17/22 09:20	05/17/22 22:21	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	72.4		4.99	mg/Kg			05/18/22 16:52	1

Client Sample Results

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

Client Sample ID: BH06A
Date Collected: 05/13/22 11:55
Date Received: 05/13/22 14:50
Sample Depth: 0.5

Lab Sample ID: 890-2311-11
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		05/16/22 15:47	05/17/22 23:56	1
Toluene	<0.00199	U	0.00199	mg/Kg		05/16/22 15:47	05/17/22 23:56	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		05/16/22 15:47	05/17/22 23:56	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		05/16/22 15:47	05/17/22 23:56	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		05/16/22 15:47	05/17/22 23:56	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		05/16/22 15:47	05/17/22 23:56	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130			05/16/22 15:47	05/17/22 23:56	1
1,4-Difluorobenzene (Surr)	97		70 - 130			05/16/22 15:47	05/17/22 23:56	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			05/18/22 08:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 22:45	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 22:45	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		05/17/22 09:20	05/17/22 22:45	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	99		70 - 130			05/17/22 09:20	05/17/22 22:45	1
o-Terphenyl	102		70 - 130			05/17/22 09:20	05/17/22 22:45	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1310		24.8	mg/Kg			05/18/22 17:01	5

Client Sample ID: BH06B
Date Collected: 05/13/22 12:00
Date Received: 05/13/22 14:50
Sample Depth: 2.5

Lab Sample ID: 890-2311-12
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:47	05/18/22 00:16	1
Toluene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:47	05/18/22 00:16	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:47	05/18/22 00:16	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		05/16/22 15:47	05/18/22 00:16	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:47	05/18/22 00:16	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		05/16/22 15:47	05/18/22 00:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130			05/16/22 15:47	05/18/22 00:16	1

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Client Sample Results

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

Client Sample ID: BH06B
 Date Collected: 05/13/22 12:00
 Date Received: 05/13/22 14:50
 Sample Depth: 2.5

Lab Sample ID: 890-2311-12
 Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	98		70 - 130	05/16/22 15:47	05/18/22 00:16	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399	mg/Kg			05/18/22 09:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			05/18/22 08:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 23:08	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 23:08	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		05/17/22 09:20	05/17/22 23:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130	05/17/22 09:20	05/17/22 23:08	1
o-Terphenyl	115		70 - 130	05/17/22 09:20	05/17/22 23:08	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	740		5.00	mg/Kg			05/18/22 17:29	1

Surrogate Summary

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		BFB1 (70-130)	DFBZ1 (70-130)
880-14744-A-21-C MS	Matrix Spike	101	102
880-14744-A-21-D MSD	Matrix Spike Duplicate	105	102
890-2311-1	BH01A	105	91
890-2311-2	BH01B	103	98
890-2311-3	BH02A	109	92
890-2311-4	BH02B	108	96
890-2311-5	BH03A	109	97
890-2311-6	BH03B	105	97
890-2311-7	BH04A	117	95
890-2311-8	BH05A	113	95
890-2311-9	BH05B	102	97
890-2311-10	BH04B	109	95
890-2311-10 MS	BH04B	102	92
890-2311-10 MSD	BH04B	107	97
890-2311-11	BH06A	108	97
890-2311-12	BH06B	110	98
LCS 880-25650/1-A	Lab Control Sample	101	98
LCS 880-25651/1-A	Lab Control Sample	99	103
LCSD 880-25650/2-A	Lab Control Sample Dup	100	97
LCSD 880-25651/2-A	Lab Control Sample Dup	95	101
MB 880-25638/5-A	Method Blank	102	92
MB 880-25650/5-A	Method Blank	103	92
MB 880-25651/5-A	Method Blank	97	99

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		1CO1 (70-130)	OTPH1 (70-130)
880-14811-A-1-B MS	Matrix Spike	91	82
880-14811-A-1-C MSD	Matrix Spike Duplicate	91	83
890-2311-1	BH01A	117	120
890-2311-2	BH01B	105	109
890-2311-3	BH02A	108	111
890-2311-4	BH02B	95	100
890-2311-5	BH03A	106	113
890-2311-6	BH03B	110	117
890-2311-7	BH04A	99	105
890-2311-8	BH05A	112	118
890-2311-9	BH05B	109	118
890-2311-10	BH04B	89	93
890-2311-11	BH06A	99	102
890-2311-12	BH06B	108	115
LCS 880-25676/2-A	Lab Control Sample	127	115
LCSD 880-25676/3-A	Lab Control Sample Dup	127	116

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Surrogate Summary

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

QC Sample Results

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-25638/5-A
Matrix: Solid
Analysis Batch: 25671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25638

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		05/16/22 13:46	05/17/22 12:34	1
Toluene	<0.00200	U	0.00200	mg/Kg		05/16/22 13:46	05/17/22 12:34	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		05/16/22 13:46	05/17/22 12:34	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		05/16/22 13:46	05/17/22 12:34	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		05/16/22 13:46	05/17/22 12:34	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		05/16/22 13:46	05/17/22 12:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130	0/ 6/ 65 13:24	0/ 6/ 7 65 15:24	1
1,4-Difluorobenzene (Surr)	95		70 - 130	0/ 6/ 65 13:24	0/ 6/ 7 65 15:24	1

Lab Sample ID: MB 880-25650/5-A
Matrix: Solid
Analysis Batch: 25671

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25650

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:47	05/17/22 23:14	1
Toluene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:47	05/17/22 23:14	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:47	05/17/22 23:14	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		05/16/22 15:47	05/17/22 23:14	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:47	05/17/22 23:14	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		05/16/22 15:47	05/17/22 23:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	0/ 6/ 65 1/ 27	0/ 6/ 7 65 53:24	1
1,4-Difluorobenzene (Surr)	95		70 - 130	0/ 6/ 65 1/ 27	0/ 6/ 7 65 53:24	1

Lab Sample ID: LCS 880-25650/1-A
Matrix: Solid
Analysis Batch: 25671

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25650

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09107		mg/Kg		91	70 - 130
Toluene	0.100	0.09370		mg/Kg		94	70 - 130
Ethylbenzene	0.100	0.09393		mg/Kg		94	70 - 130
m-Xylene & p-Xylene	0.200	0.1875		mg/Kg		94	70 - 130
o-Xylene	0.100	0.09558		mg/Kg		96	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	91		70 - 130

Lab Sample ID: LCSD 880-25650/2-A
Matrix: Solid
Analysis Batch: 25671

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25650

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.08989		mg/Kg		90	70 - 130	1	35

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QC Sample Results

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-25650/2-A
Matrix: Solid
Analysis Batch: 25671

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25650

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec		RPD	Limit
							Limits	RPD		
Toluene	0.100	0.09176		mg/Kg		92	70 - 130	2	35	
Ethylbenzene	0.100	0.09217		mg/Kg		92	70 - 130	2	35	
m-Xylene & p-Xylene	0.200	0.1838		mg/Kg		92	70 - 130	2	35	
o-Xylene	0.100	0.09342		mg/Kg		93	70 - 130	2	35	

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	100		70 - 130
1,2-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 890-2311-10 MS
Matrix: Solid
Analysis Batch: 25671

Client Sample ID: BH04B
Prep Type: Total/NA
Prep Batch: 25650

Analyte	Sample Result	Sample Qualifier	Spike Added	MS		Unit	D	%Rec	%Rec	
				Result	Qualifier				Limits	RPD
Benzene	<0.00201	U F1 F2	0.101	0.03338	F1	mg/Kg		33	70 - 130	
Toluene	<0.00201	U F1 F2	0.101	0.03913	F1	mg/Kg		39	70 - 130	
Ethylbenzene	<0.00201	U F1 F2	0.101	0.04233	F1	mg/Kg		42	70 - 130	
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.202	0.08890	F1	mg/Kg		44	70 - 130	
o-Xylene	<0.00201	U F1 F2	0.101	0.04765	F1	mg/Kg		47	70 - 130	

Surrogate	MS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	105		70 - 130
1,2-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: 890-2311-10 MSD
Matrix: Solid
Analysis Batch: 25671

Client Sample ID: BH04B
Prep Type: Total/NA
Prep Batch: 25650

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Benzene	<0.00201	U F1 F2	0.0998	0.06906	F1 F2	mg/Kg		69	70 - 130	70	35	
Toluene	<0.00201	U F1 F2	0.0998	0.07275	F2	mg/Kg		73	70 - 130	60	35	
Ethylbenzene	<0.00201	U F1 F2	0.0998	0.07396	F2	mg/Kg		74	70 - 130	54	35	
m-Xylene & p-Xylene	<0.00402	U F1 F2	0.200	0.1482	F2	mg/Kg		74	70 - 130	50	35	
o-Xylene	<0.00201	U F1 F2	0.0998	0.07416	F2	mg/Kg		74	70 - 130	44	35	

Surrogate	MSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	107		70 - 130
1,2-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: MB 880-25651/5-A
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25651

Analyte	MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Benzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/17/22 23:30	1
Toluene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/17/22 23:30	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/17/22 23:30	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		05/16/22 15:49	05/17/22 23:30	1

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QC Sample Results

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 880-25651/5-A
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25651

Analyte	MB MB		RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
o-Xylene	<0.00200	U	0.00200	mg/Kg		05/16/22 15:49	05/17/22 23:30	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		05/16/22 15:49	05/17/22 23:30	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	97		70 - 130	0/ 0/ 05/17/22 15:49	0/ 0/ 05/17/22 23:30	1
1,4-Difluorobenzene (Surr)	99		70 - 130	0/ 0/ 05/17/22 15:49	0/ 0/ 05/17/22 23:30	1

Lab Sample ID: LCS 880-25651/1-A
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25651

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Benzene	0.100	0.08852		mg/Kg		89	70 - 130
Toluene	0.100	0.08022		mg/Kg		80	70 - 130
Ethylbenzene	0.100	0.09027		mg/Kg		90	70 - 130
m-Xylene & p-Xylene	0.200	0.1609		mg/Kg		80	70 - 130
o-Xylene	0.100	0.07864		mg/Kg		79	70 - 130

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: LCSD 880-25651/2-A
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25651

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec Limits	RPD	
		Result	Qualifier					RPD	Limit
Benzene	0.100	0.07903		mg/Kg		79	70 - 130	11	35
Toluene	0.100	0.07166		mg/Kg		72	70 - 130	11	35
Ethylbenzene	0.100	0.07996		mg/Kg		80	70 - 130	12	35
m-Xylene & p-Xylene	0.200	0.1426		mg/Kg		71	70 - 130	12	35
o-Xylene	0.100	0.06940	*	mg/Kg		69	70 - 130	12	35

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	9/		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 880-14744-A-21-C MS
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25651

Analyte	Sample Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec Limits
	Result	Qualifier		Result	Qualifier				
Benzene	<0.00201	U	0.101	0.09729		mg/Kg		97	70 - 130
Toluene	<0.00201	U	0.101	0.08762		mg/Kg		87	70 - 130
Ethylbenzene	<0.00201	U	0.101	0.09883		mg/Kg		98	70 - 130
m-Xylene & p-Xylene	<0.00402	U	0.201	0.1736		mg/Kg		86	70 - 130
o-Xylene	<0.00201	U *	0.101	0.08291		mg/Kg		82	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-14744-A-21-C MS
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 25651

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	105		70 - 130

Lab Sample ID: 880-14744-A-21-D MSD
Matrix: Solid
Analysis Batch: 25672

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 25651

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.100	0.09933		mg/Kg		99	70 - 130	2	35
Toluene	<0.00201	U	0.100	0.09045		mg/Kg		90	70 - 130	3	35
Ethylbenzene	<0.00201	U	0.100	0.1007		mg/Kg		101	70 - 130	2	35
m-Xylene & p-Xylene	<0.00402	U	0.200	0.1779		mg/Kg		89	70 - 130	2	35
o-Xylene	<0.00201	U *	0.100	0.08464		mg/Kg		84	70 - 130	2	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	105		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: LCS 880-25676/2-A
Matrix: Solid
Analysis Batch: 25684

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25676

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1246		mg/Kg		125	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1072		mg/Kg		107	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	157		70 - 130
o-Terphenyl	111		70 - 130

Lab Sample ID: LCSD 880-25676/3-A
Matrix: Solid
Analysis Batch: 25684

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25676

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1186		mg/Kg		119	70 - 130	5	20
Diesel Range Organics (Over C10-C28)	1000	1079		mg/Kg		108	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	157		70 - 130
o-Terphenyl	111		70 - 130

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QC Sample Results

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-2311-1 MS
 Matrix: Solid
 Analysis Batch: 25823

Client Sample ID: BH01A
 Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2910		1250	4260		mg/Kg		108	90 - 110

Lab Sample ID: 890-2311-1 MSD
 Matrix: Solid
 Analysis Batch: 25823

Client Sample ID: BH01A
 Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2910		1250	4271		mg/Kg		109	90 - 110	0	20

Lab Sample ID: 890-2311-11 MS
 Matrix: Solid
 Analysis Batch: 25823

Client Sample ID: BH06A
 Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	1310		1240	2502		mg/Kg		97	90 - 110

Lab Sample ID: 890-2311-11 MSD
 Matrix: Solid
 Analysis Batch: 25823

Client Sample ID: BH06A
 Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	1310		1240	2501		mg/Kg		97	90 - 110	0	20

QC Association Summary

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

GC VOA

Prep Batch: 25638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-25638/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 25650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-10	BH04B	Total/NA	Solid	5035	
890-2311-11	BH06A	Total/NA	Solid	5035	
890-2311-12	BH06B	Total/NA	Solid	5035	
MB 880-25650/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-25650/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-25650/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2311-10 MS	BH04B	Total/NA	Solid	5035	
890-2311-10 MSD	BH04B	Total/NA	Solid	5035	

Prep Batch: 25651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-1	BH01A	Total/NA	Solid	5035	
890-2311-2	BH01B	Total/NA	Solid	5035	
890-2311-3	BH02A	Total/NA	Solid	5035	
890-2311-4	BH02B	Total/NA	Solid	5035	
890-2311-5	BH03A	Total/NA	Solid	5035	
890-2311-6	BH03B	Total/NA	Solid	5035	
890-2311-7	BH04A	Total/NA	Solid	5035	
890-2311-8	BH05A	Total/NA	Solid	5035	
890-2311-9	BH05B	Total/NA	Solid	5035	
MB 880-25651/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-25651/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-25651/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-14744-A-21-C MS	Matrix Spike	Total/NA	Solid	5035	
880-14744-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 25671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-10	BH04B	Total/NA	Solid	8021B	25650
890-2311-11	BH06A	Total/NA	Solid	8021B	25650
890-2311-12	BH06B	Total/NA	Solid	8021B	25650
MB 880-25638/5-A	Method Blank	Total/NA	Solid	8021B	25638
MB 880-25650/5-A	Method Blank	Total/NA	Solid	8021B	25650
LCS 880-25650/1-A	Lab Control Sample	Total/NA	Solid	8021B	25650
LCSD 880-25650/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	25650
890-2311-10 MS	BH04B	Total/NA	Solid	8021B	25650
890-2311-10 MSD	BH04B	Total/NA	Solid	8021B	25650

Analysis Batch: 25672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-1	BH01A	Total/NA	Solid	8021B	25651
890-2311-2	BH01B	Total/NA	Solid	8021B	25651
890-2311-3	BH02A	Total/NA	Solid	8021B	25651
890-2311-4	BH02B	Total/NA	Solid	8021B	25651
890-2311-5	BH03A	Total/NA	Solid	8021B	25651
890-2311-6	BH03B	Total/NA	Solid	8021B	25651
890-2311-7	BH04A	Total/NA	Solid	8021B	25651

Eurofins Carlsbad

QC Association Summary

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

GC VOA (Continued)

Analysis Batch: 25672 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-8	BH05A	Total/NA	Solid	8021B	25651
890-2311-9	BH05B	Total/NA	Solid	8021B	25651
MB 880-25651/5-A	Method Blank	Total/NA	Solid	8021B	25651
LCS 880-25651/1-A	Lab Control Sample	Total/NA	Solid	8021B	25651
LCSD 880-25651/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	25651
880-14744-A-21-C MS	Matrix Spike	Total/NA	Solid	8021B	25651
880-14744-A-21-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	25651

Analysis Batch: 25799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-1	BH01A	Total/NA	Solid	Total BTEX	
890-2311-2	BH01B	Total/NA	Solid	Total BTEX	
890-2311-3	BH02A	Total/NA	Solid	Total BTEX	
890-2311-4	BH02B	Total/NA	Solid	Total BTEX	
890-2311-5	BH03A	Total/NA	Solid	Total BTEX	
890-2311-6	BH03B	Total/NA	Solid	Total BTEX	
890-2311-7	BH04A	Total/NA	Solid	Total BTEX	
890-2311-8	BH05A	Total/NA	Solid	Total BTEX	
890-2311-9	BH05B	Total/NA	Solid	Total BTEX	
890-2311-10	BH04B	Total/NA	Solid	Total BTEX	
890-2311-11	BH06A	Total/NA	Solid	Total BTEX	
890-2311-12	BH06B	Total/NA	Solid	Total BTEX	

GC Semi VOA

Prep Batch: 25676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-1	BH01A	Total/NA	Solid	8015NM Prep	
890-2311-2	BH01B	Total/NA	Solid	8015NM Prep	
890-2311-3	BH02A	Total/NA	Solid	8015NM Prep	
890-2311-4	BH02B	Total/NA	Solid	8015NM Prep	
890-2311-5	BH03A	Total/NA	Solid	8015NM Prep	
890-2311-6	BH03B	Total/NA	Solid	8015NM Prep	
890-2311-7	BH04A	Total/NA	Solid	8015NM Prep	
890-2311-8	BH05A	Total/NA	Solid	8015NM Prep	
890-2311-9	BH05B	Total/NA	Solid	8015NM Prep	
890-2311-10	BH04B	Total/NA	Solid	8015NM Prep	
890-2311-11	BH06A	Total/NA	Solid	8015NM Prep	
890-2311-12	BH06B	Total/NA	Solid	8015NM Prep	
LCS 880-25676/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-25676/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-14811-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-14811-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 25684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-1	BH01A	Total/NA	Solid	8015B NM	25676
890-2311-2	BH01B	Total/NA	Solid	8015B NM	25676
890-2311-3	BH02A	Total/NA	Solid	8015B NM	25676
890-2311-4	BH02B	Total/NA	Solid	8015B NM	25676
890-2311-5	BH03A	Total/NA	Solid	8015B NM	25676

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QC Association Summary

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

GC Semi VOA (Continued)

Analysis Batch: 25684 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-6	BH03B	Total/NA	Solid	8015B NM	25676
890-2311-7	BH04A	Total/NA	Solid	8015B NM	25676
890-2311-8	BH05A	Total/NA	Solid	8015B NM	25676
890-2311-9	BH05B	Total/NA	Solid	8015B NM	25676
890-2311-10	BH04B	Total/NA	Solid	8015B NM	25676
890-2311-11	BH06A	Total/NA	Solid	8015B NM	25676
890-2311-12	BH06B	Total/NA	Solid	8015B NM	25676
LCS 880-25676/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	25676
LCSD 880-25676/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	25676
880-14811-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	25676
880-14811-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	25676

Analysis Batch: 25784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-1	BH01A	Total/NA	Solid	8015 NM	
890-2311-2	BH01B	Total/NA	Solid	8015 NM	
890-2311-3	BH02A	Total/NA	Solid	8015 NM	
890-2311-4	BH02B	Total/NA	Solid	8015 NM	
890-2311-5	BH03A	Total/NA	Solid	8015 NM	
890-2311-6	BH03B	Total/NA	Solid	8015 NM	
890-2311-7	BH04A	Total/NA	Solid	8015 NM	
890-2311-8	BH05A	Total/NA	Solid	8015 NM	
890-2311-9	BH05B	Total/NA	Solid	8015 NM	
890-2311-10	BH04B	Total/NA	Solid	8015 NM	
890-2311-11	BH06A	Total/NA	Solid	8015 NM	
890-2311-12	BH06B	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 25613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-1	BH01A	Soluble	Solid	DI Leach	
890-2311-2	BH01B	Soluble	Solid	DI Leach	
890-2311-3	BH02A	Soluble	Solid	DI Leach	
890-2311-4	BH02B	Soluble	Solid	DI Leach	
890-2311-5	BH03A	Soluble	Solid	DI Leach	
890-2311-6	BH03B	Soluble	Solid	DI Leach	
890-2311-7	BH04A	Soluble	Solid	DI Leach	
890-2311-8	BH05A	Soluble	Solid	DI Leach	
890-2311-9	BH05B	Soluble	Solid	DI Leach	
890-2311-10	BH04B	Soluble	Solid	DI Leach	
890-2311-11	BH06A	Soluble	Solid	DI Leach	
890-2311-12	BH06B	Soluble	Solid	DI Leach	
MB 880-25613/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-25613/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-25613/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2311-1 MS	BH01A	Soluble	Solid	DI Leach	
890-2311-1 MSD	BH01A	Soluble	Solid	DI Leach	
890-2311-11 MS	BH06A	Soluble	Solid	DI Leach	
890-2311-11 MSD	BH06A	Soluble	Solid	DI Leach	

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QC Association Summary

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

HPLC/IC

Analysis Batch: 25823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2311-1	BH01A	Soluble	Solid	300.0	25613
890-2311-2	BH01B	Soluble	Solid	300.0	25613
890-2311-3	BH02A	Soluble	Solid	300.0	25613
890-2311-4	BH02B	Soluble	Solid	300.0	25613
890-2311-5	BH03A	Soluble	Solid	300.0	25613
890-2311-6	BH03B	Soluble	Solid	300.0	25613
890-2311-7	BH04A	Soluble	Solid	300.0	25613
890-2311-8	BH05A	Soluble	Solid	300.0	25613
890-2311-9	BH05B	Soluble	Solid	300.0	25613
890-2311-10	BH04B	Soluble	Solid	300.0	25613
890-2311-11	BH06A	Soluble	Solid	300.0	25613
890-2311-12	BH06B	Soluble	Solid	300.0	25613
MB 880-25613/1-A	Method Blank	Soluble	Solid	300.0	25613
LCS 880-25613/2-A	Lab Control Sample	Soluble	Solid	300.0	25613
LCSD 880-25613/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	25613
890-2311-1 MS	BH01A	Soluble	Solid	300.0	25613
890-2311-1 MSD	BH01A	Soluble	Solid	300.0	25613
890-2311-11 MS	BH06A	Soluble	Solid	300.0	25613
890-2311-11 MSD	BH06A	Soluble	Solid	300.0	25613

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Lab Chronicle

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

Client Sample ID: BH01A

Lab Sample ID: 890-2311-1

Date Collected: 05/13/22 09:40

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	25651	05/16/22 15:49	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/18/22 05:15	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 18:16	AJ	XEN MID
Soluble	Leach	DI Leach			4.99 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		5			25823	05/18/22 14:52	CH	XEN MID

Client Sample ID: BH01B

Lab Sample ID: 890-2311-2

Date Collected: 05/13/22 09:45

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	25651	05/16/22 15:49	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/18/22 05:35	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 18:39	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		1			25823	05/18/22 15:20	CH	XEN MID

Client Sample ID: BH02A

Lab Sample ID: 890-2311-3

Date Collected: 05/13/22 09:47

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	25651	05/16/22 15:49	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/18/22 05:56	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 19:01	AJ	XEN MID
Soluble	Leach	DI Leach			4.95 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		10			25823	05/18/22 15:29	CH	XEN MID

Client Sample ID: BH02B

Lab Sample ID: 890-2311-4

Date Collected: 05/13/22 09:52

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	25651	05/16/22 15:49	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/18/22 06:16	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID

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Lab Chronicle

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

Client Sample ID: BH02B

Lab Sample ID: 890-2311-4

Date Collected: 05/13/22 09:52

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 19:26	AJ	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		5			25823	05/18/22 15:38	CH	XEN MID

Client Sample ID: BH03A

Lab Sample ID: 890-2311-5

Date Collected: 05/13/22 10:40

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	25651	05/16/22 15:49	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/18/22 06:37	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 19:51	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		1			25823	05/18/22 15:47	CH	XEN MID

Client Sample ID: BH03B

Lab Sample ID: 890-2311-6

Date Collected: 05/13/22 10:45

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	25651	05/16/22 15:49	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/18/22 06:57	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 20:17	AJ	XEN MID
Soluble	Leach	DI Leach			5.03 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		1			25823	05/18/22 16:15	CH	XEN MID

Client Sample ID: BH04A

Lab Sample ID: 890-2311-7

Date Collected: 05/13/22 10:50

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	25651	05/16/22 15:49	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/18/22 07:18	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 20:43	AJ	XEN MID

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Lab Chronicle

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Client Sample ID: BH04A

Lab Sample ID: 890-2311-7

Date Collected: 05/13/22 10:50

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Soluble	Leach	DI Leach			5 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		1			25823	05/18/22 16:24	CH	XEN MID

Client Sample ID: BH05A

Lab Sample ID: 890-2311-8

Date Collected: 05/13/22 11:20

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	25651	05/16/22 15:49	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/18/22 07:38	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 21:08	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		1			25823	05/18/22 16:33	CH	XEN MID

Client Sample ID: BH05B

Lab Sample ID: 890-2311-9

Date Collected: 05/13/22 12:00

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	25651	05/16/22 15:49	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	25672	05/18/22 07:58	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 21:56	AJ	XEN MID
Soluble	Leach	DI Leach			4.96 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		1			25823	05/18/22 16:43	CH	XEN MID

Client Sample ID: BH04B

Lab Sample ID: 890-2311-10

Date Collected: 05/13/22 10:55

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	25650	05/16/22 15:47	MR	XEN MID
Total/NA	Analysis	8021B		1			25671	05/17/22 23:35	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 22:21	AJ	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		1			25823	05/18/22 16:52	CH	XEN MID

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

Client Sample ID: BH06A

Lab Sample ID: 890-2311-11

Date Collected: 05/13/22 11:55

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	25650	05/16/22 15:47	MR	XEN MID
Total/NA	Analysis	8021B		1			25671	05/17/22 23:56	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 22:45	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		5			25823	05/18/22 17:01	CH	XEN MID

Client Sample ID: BH06B

Lab Sample ID: 890-2311-12

Date Collected: 05/13/22 12:00

Matrix: Solid

Date Received: 05/13/22 14:50

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	25650	05/16/22 15:47	MR	XEN MID
Total/NA	Analysis	8021B		1			25671	05/18/22 00:16	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			25799	05/18/22 09:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			25784	05/18/22 08:44	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	25676	05/17/22 09:20	DM	XEN MID
Total/NA	Analysis	8015B NM		1			25684	05/17/22 23:08	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	25613	05/16/22 10:51	CH	XEN MID
Soluble	Analysis	300.0		1			25823	05/18/22 17:29	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
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Method Summary

Client: Ensolum
 Project/Site: Mustang Sally #1

Job ID: 890-2311-1
 SDG: Roosevelt County NM

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

- ASTM = ASTM International
- MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
- SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
- TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

- XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



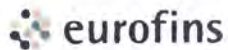
Sample Summary

Client: Ensolum
Project/Site: Mustang Sally #1

Job ID: 890-2311-1
SDG: Roosevelt County NM

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2311-1	BH01A	Solid	05/13/22 09:40	05/13/22 14:50	0.25
890-2311-2	BH01B	Solid	05/13/22 09:45	05/13/22 14:50	1.5
890-2311-3	BH02A	Solid	05/13/22 09:47	05/13/22 14:50	0.5
890-2311-4	BH02B	Solid	05/13/22 09:52	05/13/22 14:50	2.5
890-2311-5	BH03A	Solid	05/13/22 10:40	05/13/22 14:50	0.5
890-2311-6	BH03B	Solid	05/13/22 10:45	05/13/22 14:50	2.5
890-2311-7	BH04A	Solid	05/13/22 10:50	05/13/22 14:50	1.5
890-2311-8	BH05A	Solid	05/13/22 11:20	05/13/22 14:50	0.5
890-2311-9	BH05B	Solid	05/13/22 12:00	05/13/22 14:50	2.5
890-2311-10	BH04B	Solid	05/13/22 10:55	05/13/22 14:50	2.5
890-2311-11	BH06A	Solid	05/13/22 11:55	05/13/22 14:50	0.5
890-2311-12	BH06B	Solid	05/13/22 12:00	05/13/22 14:50	2.5

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Environment Testing
Xenco

Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page 1 of 2

Project Manager:	Daniel Moir	Bill to: (if different)	
Company Name:	Ensolum, LLC	Company Name:	
Address:		Address:	
City, State ZIP:		City, State ZIP:	
Phone:	303-887-2946	Email:	dmair@ensolum.com

Work Order Comments	
Program:	UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting:	Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables:	EDD <input type="checkbox"/> ADaPT <input type="checkbox"/> Other: _____

Project Name:	Mustang Sally #1		Turn Around		ANALYSIS REQUEST										Preservative Codes						
Project Number:		<input checked="" type="checkbox"/> Routine <input type="checkbox"/> Rush	Pres. Code												None: NO	DI Water: H ₂ O					
Project Location:	Rosevelt County, ND		Due Date:												Cool: Cool	MeOH: Me					
Sampler's Name:	Daniel Moir		TAT starts the day received by the lab, if received by 4:30pm												HCL: HC	HNO ₃ : HN					
PO #:															H ₂ SO ₄ : H ₂	NaOH: Na					
SAMPLE RECEIPT		Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No											H ₃ PO ₄ : HP					
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID:	TMM-001												NaHSO ₄ : NABIS						
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Correction Factor:	-0.2												Na ₂ S ₂ O ₃ : NaSO ₃						
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Temperature Reading:	5.8												Zn Acetate+NaOH: Zn						
Total Containers:		Corrected Temperature:	5.6												NaOH+Ascorbic Acid: SAPC						
Sample Identification		Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont											Sample Comments			
BH01A @ 0.25'		S	5/13	0940	0.25	G	1	X	X	X											
BH01B @ 1.5'		S		0945	1.5	G	1														
BH02A @ 0.5'		S		0947	0.5	G	1														
BH02B @ 2.5'		S		0952	2.5	G	1														
BH03A @ 0.5'		S		1040	0.5	G	1														
BH03B @ 2.5'		S		1045	2.5	G	1														
BH04A @ 1.5'		S		1050	1.5	G	1														
BH05A @ 0.5'		S	1120	1150	0.5	G	1														Time = 1120
BH05B @ 2.5'		S		1200	2.5	G	1														
BH04B @ 2.5'		S		1055	2.5	G	1														



Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM Texas 11	Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO ₂ Na Sr Tl Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed	TCLP / SPLP 6010 :	8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U	Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		1450 5/13/2022			



Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2311-1
SDG Number: Roosevelt County NM

Login Number: 2311
List Number: 1
Creator: Olivas, Nathaniel

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

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Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2311-1
SDG Number: Roosevelt County NM

Login Number: 2311
List Number: 2
Creator: Rodriguez, Leticia

List Source: Eurofins Midland
List Creation: 05/17/22 10:54 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

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Environment Testing
America

ANALYTICAL REPORT

Eurofins Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-2408-1
Laboratory Sample Delivery Group: 09C2041002
Client Project/Site: Touch of Grey State COM 1

For:
Ensolum
705 W. Wadley
Suite 210
Midland, Texas 79701

Attn: Daniel Moir

Authorized for release by:
6/14/2022 1:48:04 PM

Jessica Kramer, Project Manager
(432)704-5440
Jessica.Kramer@et.eurofinsus.com

LINKS

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results through



Have a Question?



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Client: Ensolum
Project/Site: Touch of Grey State COM 1

Laboratory Job ID: 890-2408-1
SDG: 09C2041002

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Definitions/Glossary

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

Job ID: 890-2408-1

Laboratory: Eurofins Carlsbad**Narrative**

**Job Narrative
890-2408-1**

Receipt

The samples were received on 6/13/2022 9:28 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.8°C

GC VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

Method 8015MOD_NM: The laboratory control sample (LCS) associated with preparation batch 880-27449 and analytical batch 880-27351 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

Method 8015MOD_NM: Surrogate recovery for the following samples were outside control limits: (LCS 880-27449/2-A), (LCSD 880-27449/3-A) and (890-2404-A-57-A). Evidence of matrix interferences is not obvious.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

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Client Sample Results

Client: Ensolum
 Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
 SDG: 09C2041002

Client Sample ID: SS01

Lab Sample ID: 890-2408-1

Date Collected: 06/10/22 17:30

Matrix: Solid

Date Received: 06/13/22 09:28

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		06/13/22 13:48	06/13/22 18:33	1
Toluene	0.00423	F1	0.00201	mg/Kg		06/13/22 13:48	06/13/22 18:33	1
Ethylbenzene	0.00571	F1	0.00201	mg/Kg		06/13/22 13:48	06/13/22 18:33	1
m-Xylene & p-Xylene	0.0540	F1	0.00402	mg/Kg		06/13/22 13:48	06/13/22 18:33	1
o-Xylene	0.0123		0.00201	mg/Kg		06/13/22 13:48	06/13/22 18:33	1
Xylenes, Total	0.0663	F1	0.00402	mg/Kg		06/13/22 13:48	06/13/22 18:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		05 - 175	53/17/66 17:24	53/17/66 1: 27	1
19f-8, fluorobenzene (Surr)	D		05 - 175	53/17/66 17:24	53/17/66 1: 27	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.0762		0.00402	mg/Kg			06/14/22 09:13	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	254		49.9	mg/Kg			06/14/22 09:33	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		06/13/22 16:14	06/14/22 00:51	1
Diesel Range Organics (Over C10-C28)	194	*+	49.9	mg/Kg		06/13/22 16:14	06/14/22 00:51	1
Oil Range Organics (Over C28-C36)	60.1		49.9	mg/Kg		06/13/22 16:14	06/14/22 00:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	D		05 - 175	53/17/66 13:24	53/14/66 5:52 1	1
o-Terphenyl	111		05 - 175	53/17/66 13:24	53/14/66 5:52 1	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11800		99.6	mg/Kg			06/14/22 12:57	20

Client Sample ID: SS02

Lab Sample ID: 890-2408-2

Date Collected: 06/10/22 17:35

Matrix: Solid

Date Received: 06/13/22 09:28

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		06/13/22 13:48	06/13/22 18:54	1
Toluene	0.00223		0.00202	mg/Kg		06/13/22 13:48	06/13/22 18:54	1
Ethylbenzene	0.00483		0.00202	mg/Kg		06/13/22 13:48	06/13/22 18:54	1
m-Xylene & p-Xylene	0.0466		0.00404	mg/Kg		06/13/22 13:48	06/13/22 18:54	1
o-Xylene	0.0125		0.00202	mg/Kg		06/13/22 13:48	06/13/22 18:54	1
Xylenes, Total	0.0591		0.00404	mg/Kg		06/13/22 13:48	06/13/22 18:54	1

Eurofins Carlsbad

Client Sample Results

Client: Ensolum
 Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
 SDG: 09C2041002

Client Sample ID: SS02

Lab Sample ID: 890-2408-2

Date Collected: 06/10/22 17:35

Matrix: Solid

Date Received: 06/13/22 09:28

Sample Depth: 0.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	161		05 - 175	53/17/66 1724	53/17/66 1: 2 4	1
19f-8,fluorobenzene (Surr)	D6		05 - 175	53/17/66 1724	53/17/66 1: 2 4	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.0662		0.00404	mg/Kg			06/14/22 09:13	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			06/14/22 09:33	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/13/22 16:14	06/14/22 01:11	1
Diesel Range Organics (Over C10-C28)	<50.0	U **	50.0	mg/Kg		06/13/22 16:14	06/14/22 01:11	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/13/22 16:14	06/14/22 01:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	D0		05 - 175	53/17/66 1324	53/14/66 51211	1
o-Terphenyl	114		05 - 175	53/17/66 1324	53/14/66 51211	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5620		50.3	mg/Kg			06/14/22 13:05	10

Client Sample ID: SS03

Lab Sample ID: 890-2408-3

Date Collected: 06/10/22 17:40

Matrix: Solid

Date Received: 06/13/22 09:28

Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		06/13/22 13:48	06/13/22 19:14	1
Toluene	0.0236		0.00202	mg/Kg		06/13/22 13:48	06/13/22 19:14	1
Ethylbenzene	0.0131		0.00202	mg/Kg		06/13/22 13:48	06/13/22 19:14	1
m-Xylene & p-Xylene	0.151		0.00403	mg/Kg		06/13/22 13:48	06/13/22 19:14	1
o-Xylene	0.0316		0.00202	mg/Kg		06/13/22 13:48	06/13/22 19:14	1
Xylenes, Total	0.183		0.00403	mg/Kg		06/13/22 13:48	06/13/22 19:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	15:		05 - 175	53/17/66 1724	53/17/66 1D214	1
19f-8,fluorobenzene (Surr)	::		05 - 175	53/17/66 1724	53/17/66 1D214	1

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	0.219		0.00403	mg/Kg			06/14/22 09:13	1

Method: 8015 NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			06/14/22 09:33	1

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Client Sample Results

Client: Ensolum
 Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
 SDG: 09C2041002

Client Sample ID: SS03

Lab Sample ID: 890-2408-3

Date Collected: 06/10/22 17:40

Matrix: Solid

Date Received: 06/13/22 09:28

Sample Depth: 0.5

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		06/13/22 16:14	06/14/22 01:32	1
Diesel Range Organics (Over C10-C28)	<49.9	U **	49.9	mg/Kg		06/13/22 16:14	06/14/22 01:32	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		06/13/22 16:14	06/14/22 01:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	DD		05 - 175	53/17/66 13214	53/14/66 51276	1
o-Terphenyl	116		05 - 175	53/17/66 13214	53/14/66 51276	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	34.3		5.00	mg/Kg			06/14/22 06:02	1

Surrogate Summary

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB1	DFBZ1
		(70-130)	(70-130)
890-2408-1	SS01	111	95
890-2408-1 MS	SS01	115	99
890-2408-1 MSD	SS01	113	95
890-2408-2	SS02	121	92
890-2408-3	SS03	108	88
LCS 880-27445/1-A	Lab Control Sample	104	99
LCSD 880-27445/2-A	Lab Control Sample Dup	103	100
MB 880-27445/5-A	Method Blank	101	90

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	1CO1	OTPH1
		(70-130)	(70-130)
890-2404-A-57-B MS	Matrix Spike	108	113
890-2404-A-57-C MSD	Matrix Spike Duplicate	97	105
890-2408-1	SS01	98	115
890-2408-2	SS02	97	114
890-2408-3	SS03	99	112
LCS 880-27449/2-A	Lab Control Sample	125	137 S1+
LCSD 880-27449/3-A	Lab Control Sample Dup	123	132 S1+
MB 880-27449/1-A	Method Blank	104	125

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

QC Sample Results

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-27445/5-A
Matrix: Solid
Analysis Batch: 27442

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27445

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		06/13/22 13:48	06/13/22 18:12	1
Toluene	<0.00200	U	0.00200	mg/Kg		06/13/22 13:48	06/13/22 18:12	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		06/13/22 13:48	06/13/22 18:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		06/13/22 13:48	06/13/22 18:12	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		06/13/22 13:48	06/13/22 18:12	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		06/13/22 13:48	06/13/22 18:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130	06/13/22 13:48	06/13/22 18:12	1
1,4-Difluorobenzene (Surr)	90		70 - 130	06/13/22 13:48	06/13/22 18:12	1

Lab Sample ID: LCS 880-27445/1-A
Matrix: Solid
Analysis Batch: 27442

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27445

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.100	0.09888		mg/Kg		99	70 - 130
Toluene	0.100	0.09736		mg/Kg		97	70 - 130
Ethylbenzene	0.100	0.1022		mg/Kg		102	70 - 130
m-Xylene & p-Xylene	0.200	0.2087		mg/Kg		104	70 - 130
o-Xylene	0.100	0.1050		mg/Kg		105	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	104		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: LCSD 880-27445/2-A
Matrix: Solid
Analysis Batch: 27442

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 27445

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	Limit
Benzene	0.100	0.08909		mg/Kg		89	70 - 130	10	35
Toluene	0.100	0.08588		mg/Kg		86	70 - 130	13	35
Ethylbenzene	0.100	0.09250		mg/Kg		93	70 - 130	10	35
m-Xylene & p-Xylene	0.200	0.1885		mg/Kg		94	70 - 130	10	35
o-Xylene	0.100	0.09464		mg/Kg		95	70 - 130	10	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: 890-2408-1 MS
Matrix: Solid
Analysis Batch: 27442

Client Sample ID: SS01
Prep Type: Total/NA
Prep Batch: 27445

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.00201	U	0.100	0.09215		mg/Kg		92	70 - 130
Toluene	0.00423	F1	0.100	0.09015		mg/Kg		86	70 - 130

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QC Sample Results

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 890-2408-1 MS
Matrix: Solid
Analysis Batch: 27442

Client Sample ID: SS01
Prep Type: Total/NA
Prep Batch: 27445

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier		Result	Qualifier				
Ethylbenzene	0.00571	F1	0.100	0.09119		mg/Kg		85	70 - 130
m-Xylene & p-Xylene	0.0540	F1	0.200	0.2202		mg/Kg		83	70 - 130
o-Xylene	0.0123		0.100	0.1007		mg/Kg		88	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	115		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: 890-2408-1 MSD
Matrix: Solid
Analysis Batch: 27442

Client Sample ID: SS01
Prep Type: Total/NA
Prep Batch: 27445

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Benzene	<0.00201	U	0.0996	0.07166		mg/Kg		72	70 - 130	25	35
Toluene	0.00423	F1	0.0996	0.07254	F1	mg/Kg		69	70 - 130	22	35
Ethylbenzene	0.00571	F1	0.0996	0.07476	F1	mg/Kg		69	70 - 130	20	35
m-Xylene & p-Xylene	0.0540	F1	0.199	0.1825	F1	mg/Kg		64	70 - 130	19	35
o-Xylene	0.0123		0.0996	0.08388		mg/Kg		72	70 - 130	18	35

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-27449/1-A
Matrix: Solid
Analysis Batch: 27351

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 27449

Analyte	MB	MB	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier						
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		06/13/22 16:14	06/13/22 22:06	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		06/13/22 16:14	06/13/22 22:06	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		06/13/22 16:14	06/13/22 22:06	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1-Chlorooctane	104		70 - 130	06/13/22 16:14	06/13/22 22:06	1
o-Terphenyl	125		70 - 130	06/13/22 16:14	06/13/22 22:06	1

Lab Sample ID: LCS 880-27449/2-A
Matrix: Solid
Analysis Batch: 27351

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 27449

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec
Gasoline Range Organics (GRO)-C6-C10	1000	1174		mg/Kg		117	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1455	*+	mg/Kg		145	70 - 130

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QC Sample Results

Client: Ensolum
 Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
 SDG: 09C2041002

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-27449/2-A
 Matrix: Solid
 Analysis Batch: 27351

Client Sample ID: Lab Control Sample
 Prep Type: Total/NA
 Prep Batch: 27449

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1-Chlorooctane	125		70 - 130
o-Terphenyl	137	S1+	70 - 130

Lab Sample ID: LCSD 880-27449/3-A
 Matrix: Solid
 Analysis Batch: 27351

Client Sample ID: Lab Control Sample Dup
 Prep Type: Total/NA
 Prep Batch: 27449

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec		RPD	Limit
		Result	Qualifier				Limits	RPD		
Gasoline Range Organics (GRO)-C6-C10	1000	1160		mg/Kg		116	70 - 130	1	20	
Diesel Range Organics (Over C10-C28)	1000	1434	*+	mg/Kg		143	70 - 130	1	20	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
1-Chlorooctane	123		70 - 130
o-Terphenyl	132	S1+	70 - 130

Lab Sample ID: 890-2404-A-57-B MS
 Matrix: Solid
 Analysis Batch: 27351

Client Sample ID: Matrix Spike
 Prep Type: Total/NA
 Prep Batch: 27449

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS		Unit	D	%Rec	%Rec	
				Result	Qualifier				Limits	RPD
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	998	1066		mg/Kg		107	70 - 130	
Diesel Range Organics (Over C10-C28)	<49.9	U *+	998	1010		mg/Kg		101	70 - 130	

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1-Chlorooctane	108		70 - 130
o-Terphenyl	113		70 - 130

Lab Sample ID: 890-2404-A-57-C MSD
 Matrix: Solid
 Analysis Batch: 27351

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Total/NA
 Prep Batch: 27449

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD MSD		Unit	D	%Rec	%Rec		RPD	Limit
				Result	Qualifier				Limits	RPD		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	999	905.7		mg/Kg		91	70 - 130	16	20	
Diesel Range Organics (Over C10-C28)	<49.9	U *+	999	941.1		mg/Kg		94	70 - 130	7	20	

Surrogate	MSD MSD		Limits
	%Recovery	Qualifier	
1-Chlorooctane	97		70 - 130
o-Terphenyl	105		70 - 130

QC Sample Results

Client: Ensolum
 Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
 SDG: 09C2041002

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-27302/1-A
 Matrix: Solid
 Analysis Batch: 27457

Client Sample ID: Method Blank
 Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			06/14/22 01:35	1

Lab Sample ID: LCS 880-27302/2-A
 Matrix: Solid
 Analysis Batch: 27457

Client Sample ID: Lab Control Sample
 Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	252.9		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-27302/3-A
 Matrix: Solid
 Analysis Batch: 27457

Client Sample ID: Lab Control Sample Dup
 Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	260.6		mg/Kg		104	90 - 110	3	20

Lab Sample ID: 880-15727-A-11-B MS
 Matrix: Solid
 Analysis Batch: 27457

Client Sample ID: Matrix Spike
 Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	2330	F1	1240	3749	F1	mg/Kg		114	90 - 110

Lab Sample ID: 880-15727-A-11-C MSD
 Matrix: Solid
 Analysis Batch: 27457

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	2330	F1	1240	3661		mg/Kg		107	90 - 110	2	20

Lab Sample ID: MB 880-27446/1-A
 Matrix: Solid
 Analysis Batch: 27482

Client Sample ID: Method Blank
 Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			06/14/22 08:38	1

Lab Sample ID: LCS 880-27446/2-A
 Matrix: Solid
 Analysis Batch: 27482

Client Sample ID: Lab Control Sample
 Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	250	233.7		mg/Kg		93	90 - 110

Lab Sample ID: LCSD 880-27446/3-A
 Matrix: Solid
 Analysis Batch: 27482

Client Sample ID: Lab Control Sample Dup
 Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	250	236.6		mg/Kg		95	90 - 110	1	20

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QC Sample Results

Client: Ensolum
 Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
 SDG: 09C2041002

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 890-2407-A-11-C MS
 Matrix: Solid
 Analysis Batch: 27482

Client Sample ID: Matrix Spike
 Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Chloride	208		249	448.4		mg/Kg		96	90 - 110

Lab Sample ID: 890-2407-A-11-D MSD
 Matrix: Solid
 Analysis Batch: 27482

Client Sample ID: Matrix Spike Duplicate
 Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Chloride	208		249	447.1		mg/Kg		96	90 - 110	0	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

QC Association Summary

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

GC VOA

Analysis Batch: 27442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2408-1	SS01	Total/NA	Solid	8021B	27445
890-2408-2	SS02	Total/NA	Solid	8021B	27445
890-2408-3	SS03	Total/NA	Solid	8021B	27445
MB 880-27445/5-A	Method Blank	Total/NA	Solid	8021B	27445
LCS 880-27445/1-A	Lab Control Sample	Total/NA	Solid	8021B	27445
LCSD 880-27445/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	27445
890-2408-1 MS	SS01	Total/NA	Solid	8021B	27445
890-2408-1 MSD	SS01	Total/NA	Solid	8021B	27445

Prep Batch: 27445

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2408-1	SS01	Total/NA	Solid	5035	
890-2408-2	SS02	Total/NA	Solid	5035	
890-2408-3	SS03	Total/NA	Solid	5035	
MB 880-27445/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-27445/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-27445/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2408-1 MS	SS01	Total/NA	Solid	5035	
890-2408-1 MSD	SS01	Total/NA	Solid	5035	

Analysis Batch: 27472

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2408-1	SS01	Total/NA	Solid	Total BTEX	
890-2408-2	SS02	Total/NA	Solid	Total BTEX	
890-2408-3	SS03	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 27351

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2408-1	SS01	Total/NA	Solid	8015B NM	27449
890-2408-2	SS02	Total/NA	Solid	8015B NM	27449
890-2408-3	SS03	Total/NA	Solid	8015B NM	27449
MB 880-27449/1-A	Method Blank	Total/NA	Solid	8015B NM	27449
LCS 880-27449/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	27449
LCSD 880-27449/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	27449
890-2404-A-57-B MS	Matrix Spike	Total/NA	Solid	8015B NM	27449
890-2404-A-57-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	27449

Prep Batch: 27449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2408-1	SS01	Total/NA	Solid	8015NM Prep	
890-2408-2	SS02	Total/NA	Solid	8015NM Prep	
890-2408-3	SS03	Total/NA	Solid	8015NM Prep	
MB 880-27449/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-27449/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-27449/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2404-A-57-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2404-A-57-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

GC Semi VOA

Analysis Batch: 27480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2408-1	SS01	Total/NA	Solid	8015 NM	
890-2408-2	SS02	Total/NA	Solid	8015 NM	
890-2408-3	SS03	Total/NA	Solid	8015 NM	

HPLC/IC

Leach Batch: 27302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2408-3	SS03	Soluble	Solid	DI Leach	
MB 880-27302/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-27302/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-27302/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-15727-A-11-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-15727-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Leach Batch: 27446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2408-1	SS01	Soluble	Solid	DI Leach	
890-2408-2	SS02	Soluble	Solid	DI Leach	
MB 880-27446/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-27446/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-27446/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2407-A-11-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-2407-A-11-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 27457

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2408-3	SS03	Soluble	Solid	300.0	27302
MB 880-27302/1-A	Method Blank	Soluble	Solid	300.0	27302
LCS 880-27302/2-A	Lab Control Sample	Soluble	Solid	300.0	27302
LCSD 880-27302/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	27302
880-15727-A-11-B MS	Matrix Spike	Soluble	Solid	300.0	27302
880-15727-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	27302

Analysis Batch: 27482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2408-1	SS01	Soluble	Solid	300.0	27446
890-2408-2	SS02	Soluble	Solid	300.0	27446
MB 880-27446/1-A	Method Blank	Soluble	Solid	300.0	27446
LCS 880-27446/2-A	Lab Control Sample	Soluble	Solid	300.0	27446
LCSD 880-27446/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	27446
890-2407-A-11-C MS	Matrix Spike	Soluble	Solid	300.0	27446
890-2407-A-11-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	27446

Eurofins Carlsbad

Lab Chronicle

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

Client Sample ID: SS01

Lab Sample ID: 890-2408-1

Date Collected: 06/10/22 17:30

Matrix: Solid

Date Received: 06/13/22 09:28

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	27445	06/13/22 13:48	MR	XEN MID
Total/NA	Analysis	8021B		1	5 g	5 mL	27442	06/13/22 18:33	AJ	XEN MID
Total/NA	Analysis	Total BTEX		1			27472	06/14/22 09:13	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			27480	06/14/22 09:33	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	27449	06/13/22 16:14	DM	XEN MID
Total/NA	Analysis	8015B NM		1			27351	06/14/22 00:51	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	27446	06/13/22 14:08	CH	XEN MID
Soluble	Analysis	300.0		20			27482	06/14/22 12:57	CH	XEN MID

Client Sample ID: SS02

Lab Sample ID: 890-2408-2

Date Collected: 06/10/22 17:35

Matrix: Solid

Date Received: 06/13/22 09:28

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	27445	06/13/22 13:48	MR	XEN MID
Total/NA	Analysis	8021B		1	5 g	5 mL	27442	06/13/22 18:54	AJ	XEN MID
Total/NA	Analysis	Total BTEX		1			27472	06/14/22 09:13	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			27480	06/14/22 09:33	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	27449	06/13/22 16:14	DM	XEN MID
Total/NA	Analysis	8015B NM		1			27351	06/14/22 01:11	AJ	XEN MID
Soluble	Leach	DI Leach			4.97 g	50 mL	27446	06/13/22 14:08	CH	XEN MID
Soluble	Analysis	300.0		10			27482	06/14/22 13:05	CH	XEN MID

Client Sample ID: SS03

Lab Sample ID: 890-2408-3

Date Collected: 06/10/22 17:40

Matrix: Solid

Date Received: 06/13/22 09:28

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	27445	06/13/22 13:48	MR	XEN MID
Total/NA	Analysis	8021B		1	5 g	5 mL	27442	06/13/22 19:14	AJ	XEN MID
Total/NA	Analysis	Total BTEX		1			27472	06/14/22 09:13	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			27480	06/14/22 09:33	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	27449	06/13/22 16:14	DM	XEN MID
Total/NA	Analysis	8015B NM		1			27351	06/14/22 01:32	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	27302	06/13/22 10:31	SC	XEN MID
Soluble	Analysis	300.0		1			27457	06/14/22 06:02	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Carlsbad

Accreditation/Certification Summary

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

Laboratory: Eurofins Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

- 1
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Method Summary

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
Total BTEX	Total BTEX Calculation	TAL SOP	XEN MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

XEN MID = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440



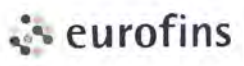
Sample Summary

Client: Ensolum
Project/Site: Touch of Grey State COM 1

Job ID: 890-2408-1
SDG: 09C2041002

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2408-1	SS01	Solid	06/10/22 17:30	06/13/22 09:28	0.5
890-2408-2	SS02	Solid	06/10/22 17:35	06/13/22 09:28	0.5
890-2408-3	SS03	Solid	06/10/22 17:40	06/13/22 09:28	0.5

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Environment Testing Xenco

Chain of Custody


Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page 1 of 1

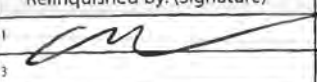
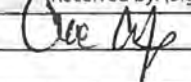
Work Order Comments	
Program:	UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	
Reporting:	Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables:	EDD <input type="checkbox"/> ADaPT <input type="checkbox"/> Other: _____

Project Manager:	Dan Moir	Bill to: (if different)	
Company Name:	Ensolum	Company Name:	
Address:	3122 Natl. Parks Hwy.	Address:	
City, State ZIP:	Carlsbad, NM 88220	City, State ZIP:	
Phone:	3038872946	Email:	dmoir@ensolum.com

Project Name:	Touch of Grey State Con. I	Turn Around		ANALYSIS REQUEST										Preservative Codes				
Project Number:	09C2041002	<input type="checkbox"/> Routine <input checked="" type="checkbox"/> Rush	Pres. Code														None: NO	DI Water: H ₂ O
Project Location:	Roosevelt County, NM	Due Date:	6/14/22														Cool: Cool	MeOH: Me
Sampler's Name:	Liz Chen	TAT starts the day received by the lab, if received by 4:30pm															HCL: HC	HNO ₃ : HN
PO #:	N/A																H ₂ S ₄ : H ₂	NaOH: Na
SAMPLE RECEIPT		Temp Blank: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Parameters TPH (EPA 8015) BTEX (EPA 8021) Chloride (EPA 300)	 890-2408 Chain of Custody										H ₃ PO ₄ : HP			
Samples Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Thermometer ID:	11111007												NaHSO ₄ : NABIS			
Cooler Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Correction Factor:	-0.2												Na ₂ S ₂ O ₃ : NaSO ₃			
Sample Custody Seals:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Temperature Reading:	6.0												Zn Acetate+NaOH: Zn			
Total Containers:		Corrected Temperature:	5.8												NaOH+Ascorbic Acid: SAPC			
Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/Comp	# of Cont											Sample Comments	
SS01	S	6/10/22	1730	0.5'	G	1												
SS02	↓	↓	1735	↓	↓	↓												
SS03	↓	↓	1740	↓	↓	↓												

Total 200.7 / 6010	200.8 / 6020:	8RCRA	13PPM	Texas	11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Tl	Sn	U	V	Zn
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010 : 8RCRA															Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Tl	U	Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of \$85.00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		6-13-22 0928			

Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2408-1

SDG Number: 09C2041002

Login Number: 2408

List Number: 1

Creator: Clifton, Cloe

List Source: Eurofins Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

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Login Sample Receipt Checklist

Client: Ensolum

Job Number: 890-2408-1

SDG Number: 09C2041002

Login Number: 2408

List Number: 2

Creator: Kramer, Jessica

List Source: Eurofins Midland

List Creation: 06/14/22 09:07 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

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District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 131895

CONDITIONS

Operator: ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	OGRID: 1092
	Action Number: 131895
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jnobui	Deferral Approved.	8/11/2022

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS
 Action 225639

CONDITIONS

Operator: ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	OGRID: 1092
	Action Number: 225639
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	9/8/2023